IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS been BROKEN

TO OPEN ***JUST DO THIS:***

1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.

3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 519 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ FEB. 1961

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Blaupunkt Model Boston 4633

General Electric Model W300A

ALIGNMENT

Always use an isolation transformer in series with the AC line when aligning the intercom. In addition to protecting service personnel, it also reduces the presence of undesired elements on the carrier which may affect alignment.

For proper alignment of the intercom it is necessary to use certain filter networks. (See filter diagrams). A High Pass filter and 10 ohm load are necessary for transmitter alignment in order to pick the transmitted signal off the AC line, enabling it to be seen on a scope or read on a 20,000 ohm/volt meter. A matching filter is necessary to couple a signal from a signal generator onto the AC line when the receiver is being aligned.

Always make the transmitter alignment before the receiver alignment.

Transmitter Alignment

Plug the intercom and the High Pass filter into the isolation transformer. Connect the horizontal input of the scope and a VTVM or a 20,000 ohm/volt meter to the High Pass filter. Set channel switch on CHANNEL A. Feed a 200 KC signal from a signal generator to the vertical input terminals on the scope.

With the function switch slide-bar in the transmit position, adjust T1 and L3 for at least 0.4 volts RMS on a VTVM and an oval Lissajous pattern on the scope.

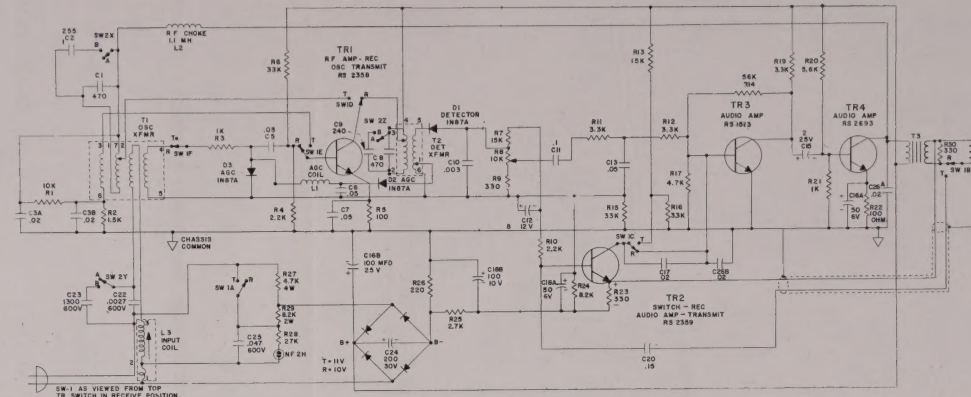
A 1,000 cycle audio signal should be able to 100% modulate the r.f. carrier as observed on the scope.

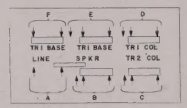
Receiver Alignment

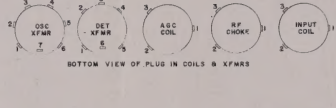
Plug the intercom and Matching filter into the isolation transformer. Connect a modulated 200KC signal from the signal generator to the filter. Connect a 20,000 ohm/volt meter across the speaker voice coil. Return the switch slide-bar to receive position and set channel switch to CHANNEL A.

With the volume control set at maximum, tune T2 for maximum output as indicated on the meter across the voice coil. As T2 is peaked, keep reducing signal input to the minimum point necessary to open the squelch circuit. The receiver can also be aligned audibly.

Then plug the High Pass filter into the isolation transformer. Feed a 200 KC signal 80% modulated with 1,000 cycles into the Matching filter. Adjust the signal input until 10 millivolts are read on a voltmeter across the High Pass filter terminals. This signal level should produce at least 1 volt RMS across the speaker voice coil.







BOTTOM VIEW OF PLUG IN COILS & XFMRS

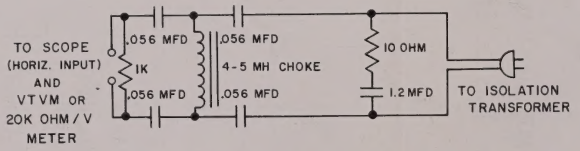
NOTE:
CHASSIS COMMON IS NOT THE SAME AS THE 117V AC GROUND. DO NOT USE CHASSIS COMMON FOR ANY MEASUREMENT INVOLVING THE 117V AC LINE
SW-I SHOWN IN REC POSITION
SW-2 SHOWN IN "A" OR 200 KC POSITION
MEASURE TR2 EMITTER CURRENT ACROSS R23. WITH SW-I IN RECEIVE POSITION, QUIESCENT VOLTAGE SHOULD BE APPROX 15V. VOLTAGE WHEN SIGNAL IS PRESENT DROPS TO .05V.

AVERAGE QUIESCENT VOLTAGES AT TRANSISTORS
READ WITH 20K OHM/VOLT METER

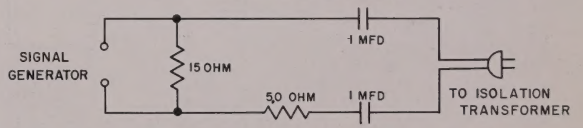
		TR1	TR2	TR3	TR4
RECEIVER	E	.27	0	1.3	1.3
	B	.62	0.4	1.3	1.3
CHASSIS	C	9.6	8.6	9.1	
COMMON	B+	5.8	8.6	9.8	
GROUND	B−	-4.05	-4.05	-4.05	
TRANS	E	3.4	0	1.72	
MIT	B	4.01	0.5	1.92	
TUNE	C	10.6	3.5	10.8	
COMMON	B+	11.1	11.7	11.7	
GROUND	B−	-16.35	-4.35	-4.35	

BASE OF TRANS REC OTHER VOLTAGES ON
TR-2 ~.075 ~1.1 TR-2 MUST BE READ
TO B− WITH VTVM.

HIGH PASS FILTER AND 10 OHM LOAD FOR TRANSMITTER ALIGNMENT

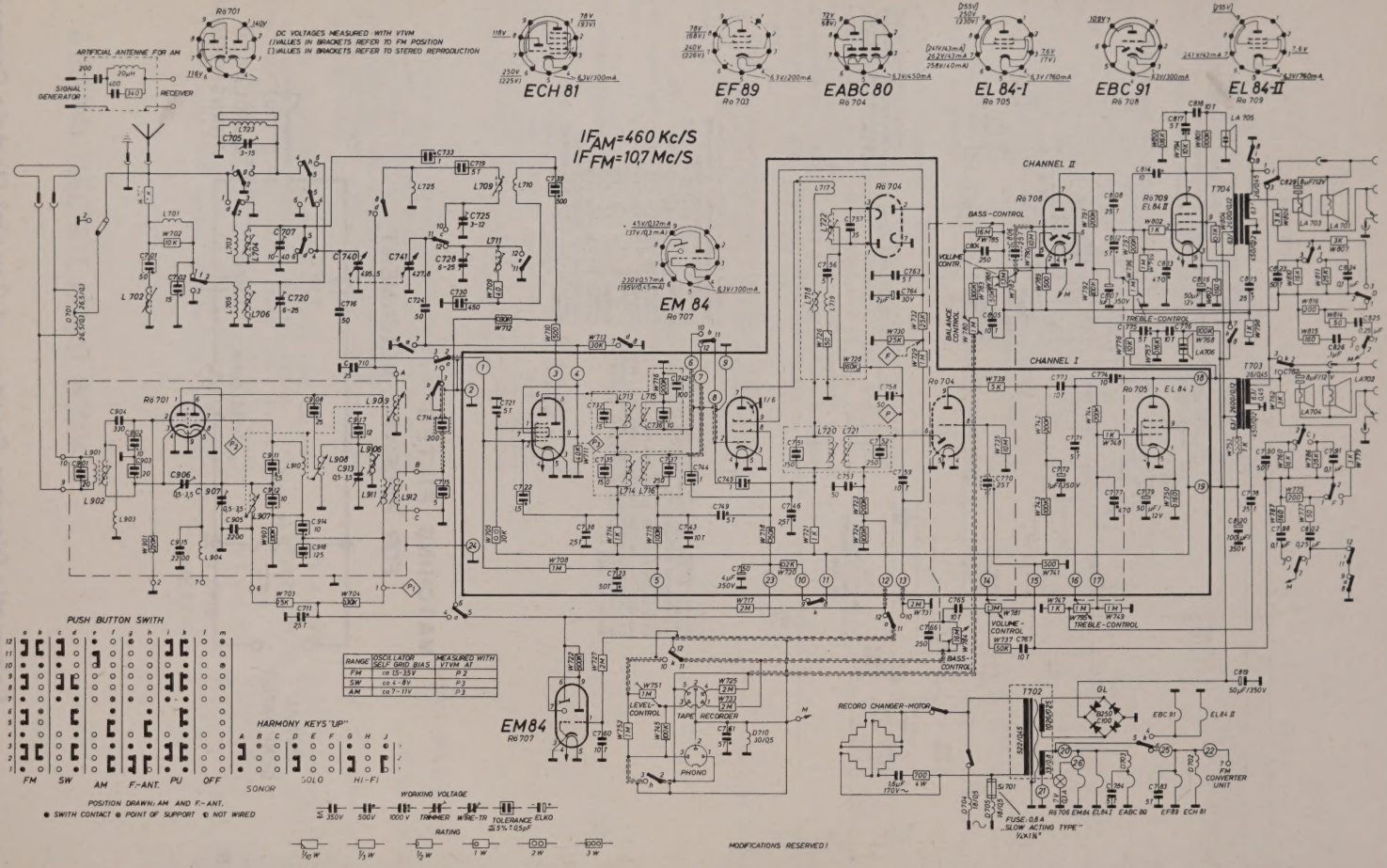


MATCHING FILTER FOR RECEIVER ALIGNMENT



GENERAL ELECTRIC MODEL W300A

Schematic Diagram Courtesy of General Electric Company



BLAUPUNKT MODEL BOSTON 4633

Schematic Diagram Courtesy of Blaupunkt: Importer N. Pickens Import Company

PHOTOFACT® Folder with CIRCUITRACE®

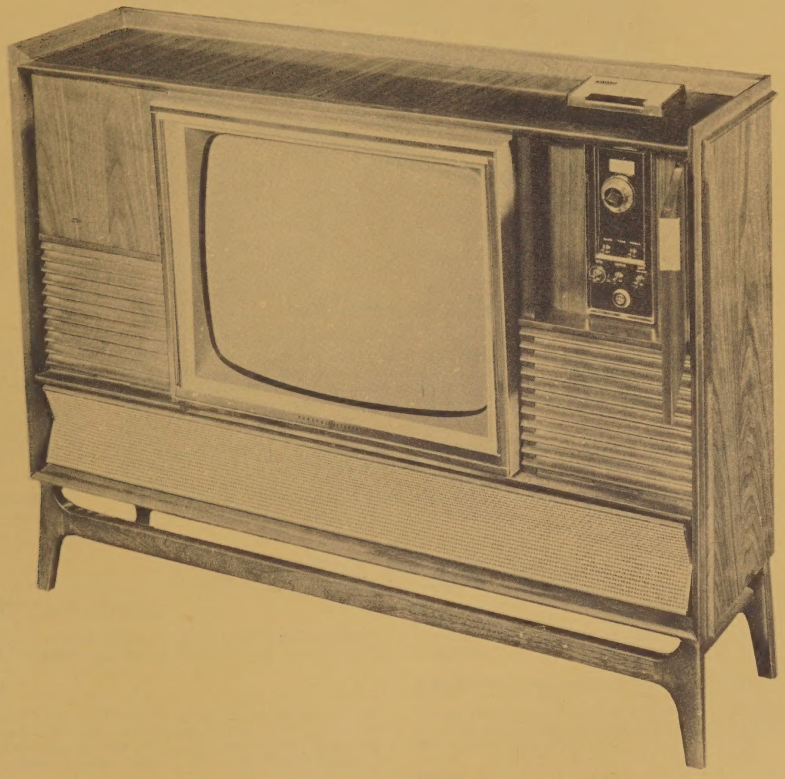
GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL R870VWD (TV CH. U5)

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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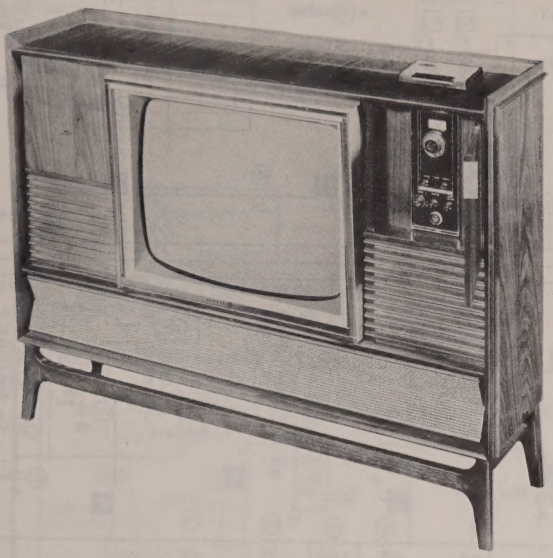
DATE 2-61 SET 519 FOLDER 1

SET 519 FOLDER 1

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)



MODEL R870VWD (TV CH. U5)

TRADE NAME	General Electric Models M870VWD, M871VWD, R870VML, R870VWD (Chassis U5)
MANUFACTURER	General Electric Co., Appliance & Television Receiver Div., Louisville, Kentucky
TYPE SET	Television Receiver (Models R870VWD & R870VML with Remote Control RW-461)
TUBES	TV: VHF - Seventeen, UHF - Eighteen Remote Control Receiver: Two
TRANSISTOR	Remote Control Transmitter: One
POWER SUPPLY	110-125 Volts AC, 60 Cycle
RATING	215 Watts, 2.1 Amp. @ 117 Volts AC (VHF, with Remote Control Receiver, While Tuning) 175 Watts, 1.65 Amp. @ 117 Volts AC (VHF, with Remote Control Receiver, Not Tuning) 170 Watts, 1.6 Amp. @ 117 Volts AC (VHF, TV Only)
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 4 screws holding the trim strip at the top edge of the safety glass. Tilt glass out and remove.

FUSE

See "Tube Placement Chart" for location of 3½ Amp. line fuse and 3/10 Amp. fuse (Horiz. Sweep). A fuse wire is used for filament protection. (See M4 in photo "Video IF, AGC, Sound Printed Board - Capacitor & Misc. Ident".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove tuner and control panel.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube thru 1000Ω resistor to various voltage points. (For location, see photo "Vert., Horiz., Sync, Video Output Printed Board - Resistor, Inductor, Focus Point Ident.").

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Switch. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (A11) located at top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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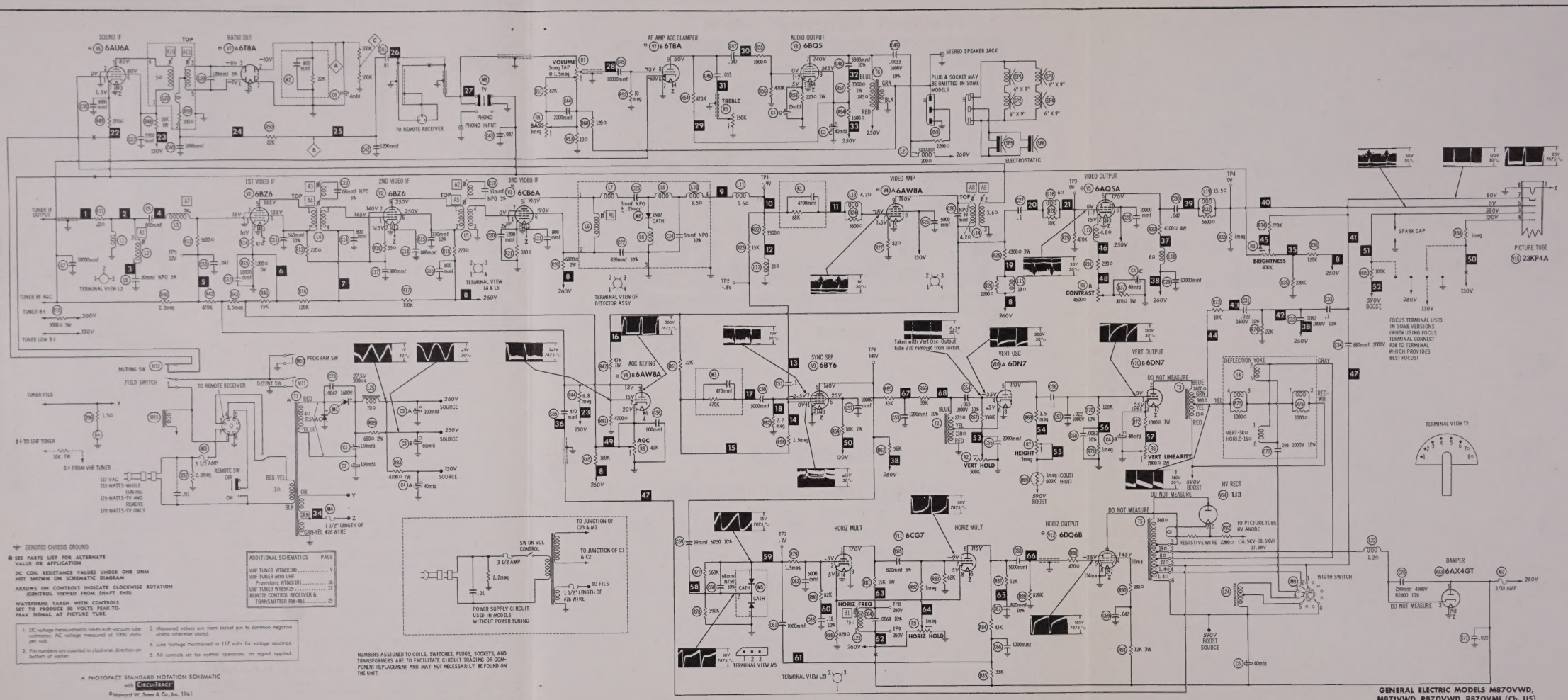
KA476

SET 519 FOLDER 1



DENOTES CHASSIS GROUND

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

ADDITIONAL SCHEMATICS	PAGE
VHF TUNER WT86X100	9
VHF TUNER WITH UHF Provisions WT86X101	16
UHF TUNER WT85X25	17
REMOTE CONTROL RECEIVER & TRANSMITTER RW-461	23

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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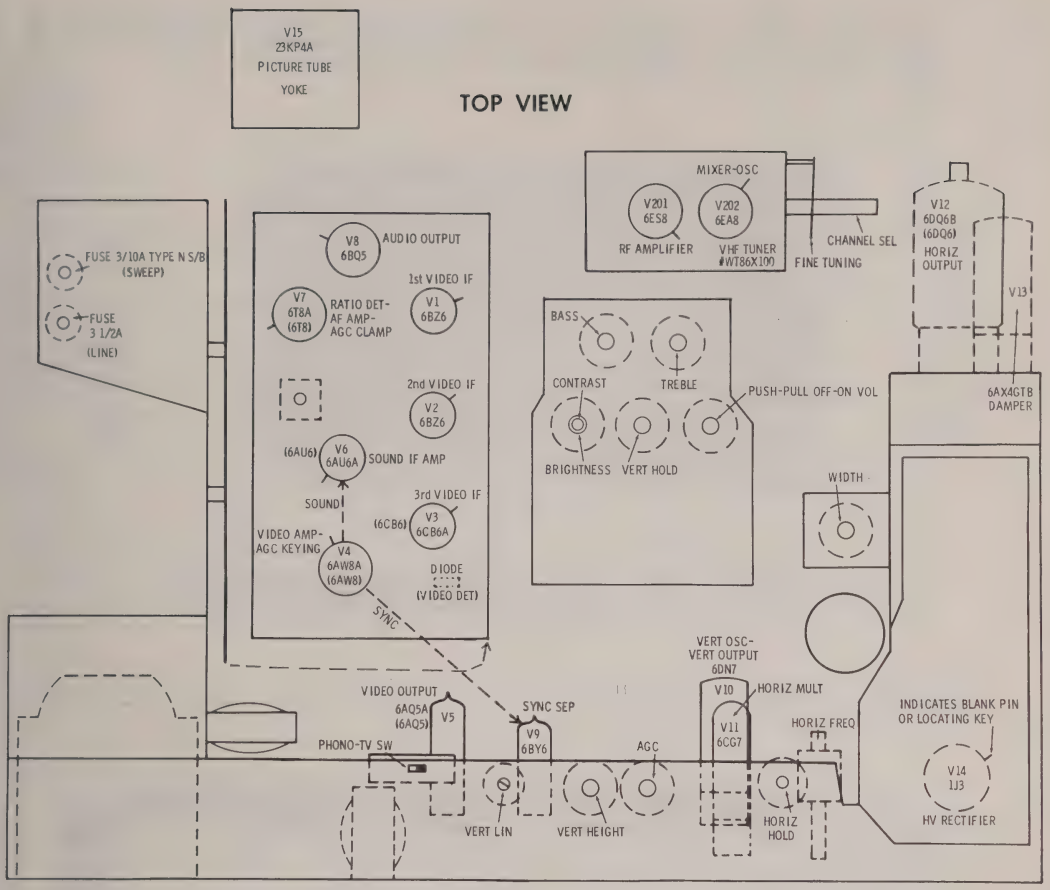
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (Line), Fil. Wire, Rectifiers (B+)

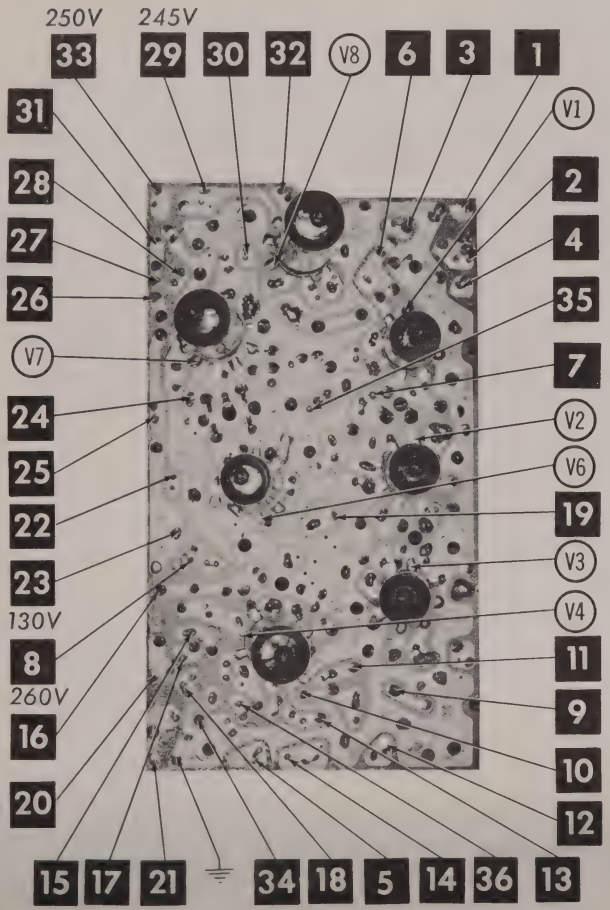
SWEEP FAILURE
No raster, has sound V11, V12, Fuse (Sweep), V13, V14, V15
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, Rectifiers (B+)
Vert. off freq. V10
Horiz. off freq. Diodes (Horiz. AFC), V11

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V5, V15
Has pic, no sound V6, V7, V8
Overloaded picture V4

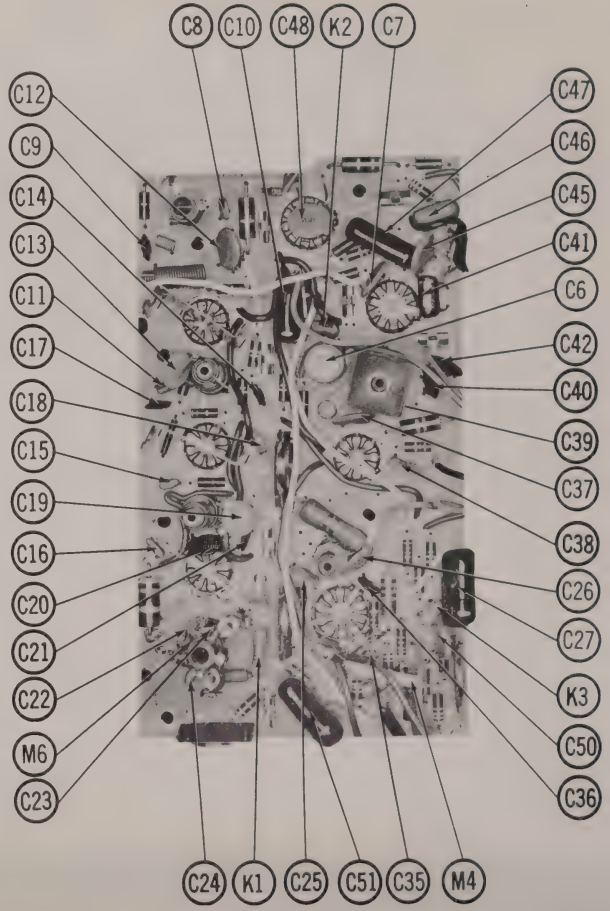
SYNC FAILURE
No vert. sync V9
No horiz. sync V9
No vert. or horiz. sync V9, Diodes (Horiz. AFC)

A Howard W. Sams CIRCUITRACE® Photo

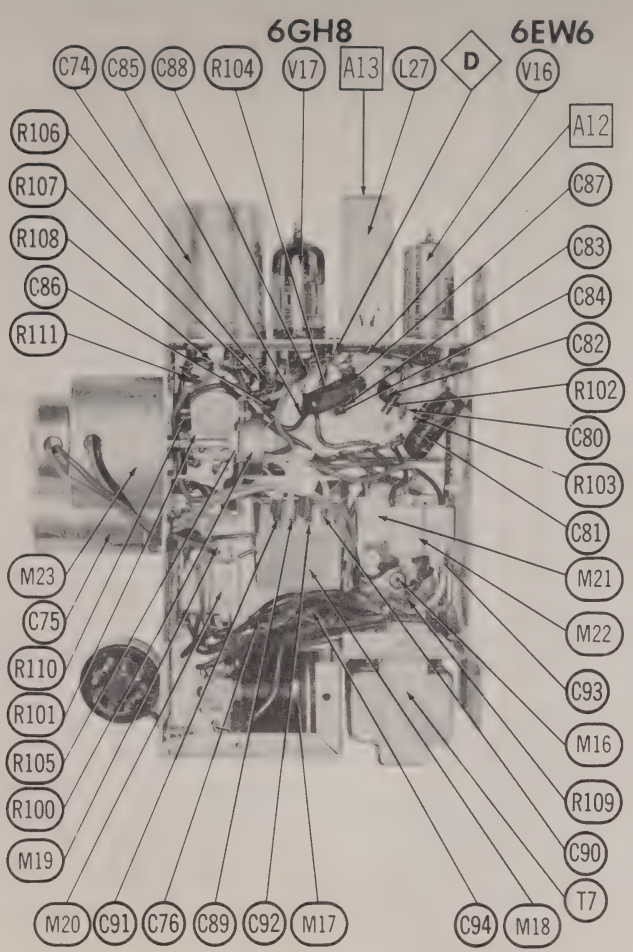
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



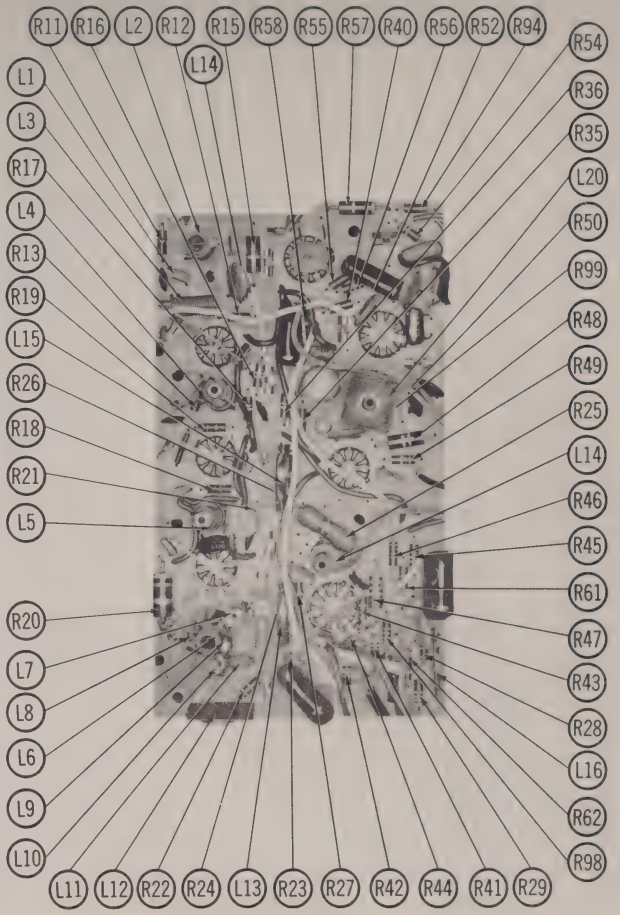
VIDEO IF-AMP., AGC, SOUND PRINTED BOARD



VIDEO IF-AMP., AGC, SOUND PRINTED BOARD
CAPACITOR & MISC. IDENT.



REMOTE CONTROL RECEIVER



VIDEO IF-AMP., AGC, SOUND PRINTED BOARD
RESISTOR & INDUCTOR IDENT.

GENERAL ELECTRIC MODELS M870VWD,
M871VWD, R870VWD, R870VML (Ch. U5)
FOLDER 1

TV ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Volume control fully counterclockwise.
Set Contrast control fully clockwise.
Turn Fine Tuning control fully counterclockwise.
Connect the negative lead of a 3 volt bias supply to TP-5. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side to ungrounded tube shield floating over Mixer-Osc. Low side to chassis.	44.0MC (10MC Swp)	47.25 MC	Any non-interfering channel	Vert. Amp. thru 10K to TP-1. Low side to chassis.	A1, A2	Adjust for MINIMUM amplitude at marker.
2.	"	"	41.25MC	"	"	A3	"
3.	"	"	42.5MC	"	"	A4	Adjust to place marker at 55% on curve as in Fig. 1.
4.	"	"	45.75MC	"	"	A5	Adjust to place marker at 45% on curve as in Fig. 1.
5.	"	"	44.15MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	45.75MC	"	"	Mixer Plate Coil	"
7.	"	"	42.5MC	"	"	A7	"
8.	"	"	42.5MC 45.75MC	"	"		Check for response similar to Fig. 1. If necessary, retouch A4 and A5 for symmetrical response similar to Fig. 1.

4.5MC TRAP ALIGNMENT

Turn the Contrast control fully clockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	High side thru .001mfd to TP-1. Low side to chassis.	4.5MC (400~ 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector network (Fig. 2) to pin 7 (cathode) of picture tube. Low side to chassis.	A8	Adjust for MINIMUM 400~ on scope.

SOUND IF ALIGNMENT

A weak TV signal should be substituted for the signal generator, if possible.
The speaker should be connected during alignment.
Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	High side thru .001mfd to TP-1. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓐ. Common to chassis.	A9, A10	Adjust for maximum deflection.
11.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

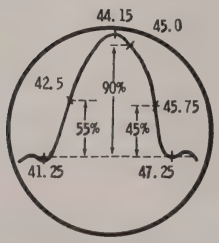


FIG. 1

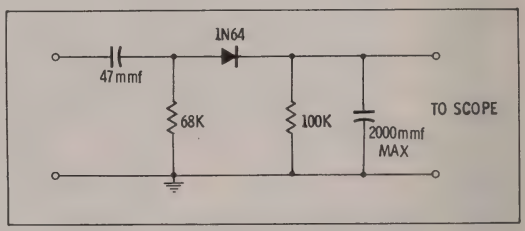


FIG. 2

ALIGNMENT & ADJUSTMENTS
(REMOTE CONTROL)

RECEIVER ALIGNMENT

Unplug the loop antenna from the RF input jack and insert a dummy antenna (Fig. 3).

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Loosely couple to dummy antenna (Fig. 3). (Low side not connected).	322.7KC (400∿ Mod.)		AC probe to point Ⓓ. Common to chassis.	A12, A13	Use only enough generator output to provide a usable indication. Adjust for maximum deflection.
2.	Remove dummy antenna and plug loop antenna in socket.	"		Reset range switch on VTVM to 15VAC scale. Attenuate generator for half scale deflection of meter.	A14	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

RECEIVER ANTENNA ADJUSTMENT

Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Tune the TV receiver for a normal picture. Turn the Horizontal hold of the TV off frequency. Switch VTVM to a scale where a reading is obtained. Readjust the Horizontal Hold of the TV receiver to obtain maximum reading on the meter. Carefully move the remote antenna up or down until MINIMUM reading is obtained on the VTVM. Adjust Sensitivity Control to obtain 3 volts RMS on VTVM. Adjust Horizontal Hold until picture synchronizes horizontally.

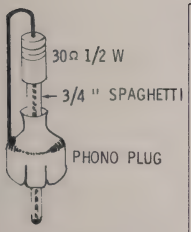


FIG. 3

TRANSMITTER ALIGNMENT

Disconnect the receiver loop antenna and insert the dummy antenna (Fig. 3). Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Adjust the VTVM to the 1.5 or 3 volt scale. With one of the function buttons of the transmitter depressed, slowly move the transmitter toward the dummy antenna until half scale deflection on the VTVM is obtained. While holding the transmitter steady, adjust A15 for maximum deflection on the VTVM. (Attenuate as necessary by moving the transmitter away from the dummy antenna.) Remove the bottom cover from the transmitter. Connect a .002mfd capacitor across C95. Place the transmitter close to the receiver and depress each of the function buttons, starting with "Off-On" and ending with " + Volume". Should one or more of the functions fail to operate in sequence, the core of the coil involved should be adjusted until the proper function is actuated. Unplug the receiver antenna and insert the dummy antenna (Fig. 3). Connect the AC probe of the VTVM to point Ⓓ. Common to chassis. Set the VTVM to 1.5 or 3 volt AC scale.

With the "Off-On" function button depressed, move the transmitter close to the dummy antenna until half scale deflection is obtained. While holding the transmitter steady adjust A16 for MINIMUM deflection of the VTVM.

Depress "Channel Select" button and carefully adjust A17 for MINIMUM deflection on the VTVM.

Depress "Volume-" button and adjust A18 for MINIMUM deflection on VTVM.

Depress "Volume+" button and adjust A19 for MINIMUM deflection on the VTVM.

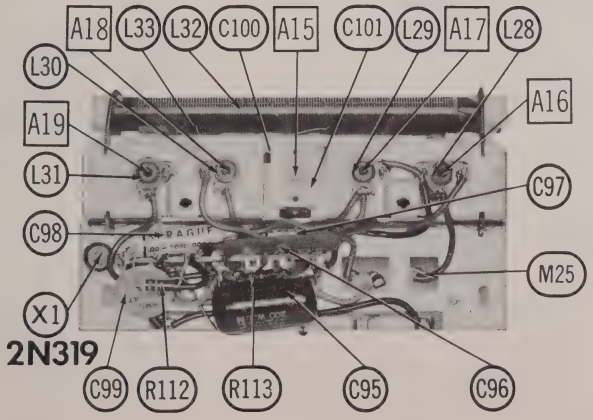
Remove the .002mfd capacitor from across C95. Disconnect the VTVM.

Restore both the receiver and transmitter to operating condition and from a distance check the operation of each of the four transmitter operations.

SHIFTING THE RF CARRIER FREQUENCY

The unit was factory aligned at 322.7KC; However, a usable RF bandspread of plus or minus 31.5KC is available for the system. This allows a total RF band of 63KC with a center frequency of 322.7KC.

If it is found that two systems are being used near enough to each other to cause interference, it is merely necessary to slightly shift the RF carrier frequency for one of the two systems. This is accomplished by selecting another frequency to be used in the RF alignment for both Receiver and Transmitter. The frequency chosen must fall within the allowable limits of plus or minus 31.5KC. It is advisable to shift the frequency to 291.2 or 354.2KC. This then separates the carrier frequency of both units by 31.5KC and at the same time, the frequency of the unit shifted, is placed half way between two harmonics of the undesired horizontal frequency.



REMOTE CONTROL TRANSMITTER

SET 519 FOLDER 1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: A201 thru A212 ..... General Cement #5097, 8727
Walsco #2515
A213, A214, A215, A216 ..... General Cement #8607, 9291
Walsco #2520, 2522, 2523, 2524, 2537

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Set Contrast two-thirds from full counterclockwise rotation.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place video marker at 45% as in Fig. 202.
			207MC	205.25MC	12		A202	
			201MC	199.25MC	11		A203	
			195MC	193.25MC	10		A204	
			189MC	187.25MC	9		A205	
			183MC	181.25MC	8		A206	
			177MC	175.25MC	7		A207	
			85MC	83.25MC	6		A208	
			79MC	77.25MC	5		A209	
			69MC	67.25MC	4		A210	
			63MC	61.25MC	3		A211	
			57MC	55.25MC	2		A212	

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point ⓣ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point ⓤ . Low side to chassis.	A213, A214, A215, A216, A217, A218	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown. A217 adjusts bandwidth, A218 controls tilt.
3.	"	"	177MC	175.25MC 179.75MC	7	"	A219, A220	Adjust for maximum gain and symmetry of response similar to Fig. 203 with markers as shown. Retouch A213 for maximum gain and equal peaks.
4.	"	"	207MC	205.25MC 209.75MC	12	"		Make compromise adjustments of A213 thru A217 and/or A219 and A220, if necessary. Replace tuner shield when checking response.
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
5.	"	"	85MC	83.25MC 87.75MC	6	"	A221, A222, A223, A224	Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown. Adjust bandwidth by positioning "Gimmick".
6.	"	"	79MC	77.25MC 81.75MC	5	"	A225, A226, A227, A228	Adjust for maximum gain and symmetry of response similar to Fig. 204. with markers as shown.
7.	"	"	69MC	67.25MC 71.75MC	4	"	A229, A230, A231, A232	"
8.	"	"	63MC	61.25MC 65.75MC	3	"	A233, A234, A235, A236	"
9.	"	"	57MC	55.25MC 59.75MC	2	"	A237, A238, A239, A240	"

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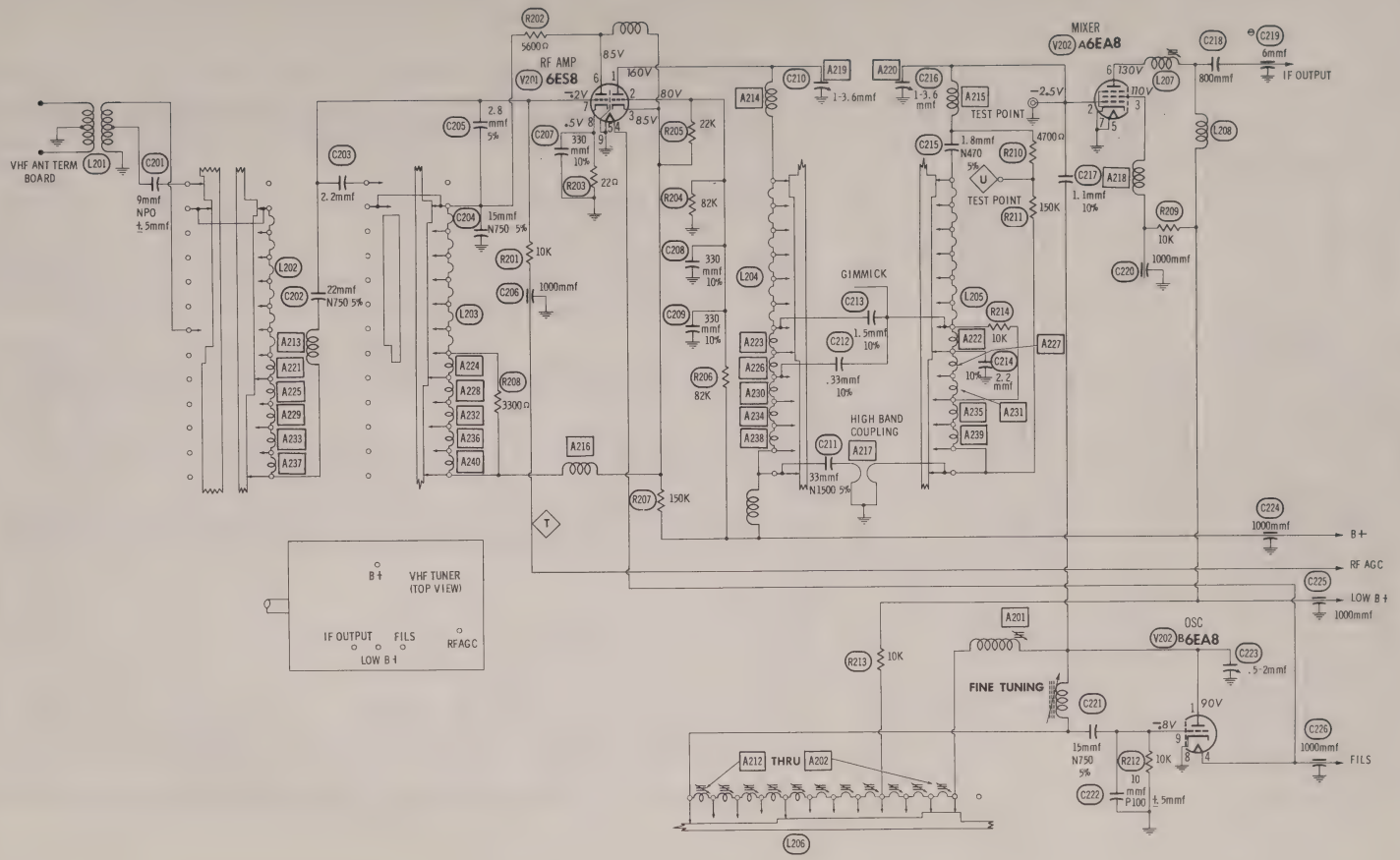

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER WT86X100

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (CH. U5)

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	1st Video IF Amp.	6BZ6
V2	2nd Video IF Amp.	6BZ6
V3	3rd Video IF Amp.	6CB6A (6CB6) *
V4	Video Amp. - AGC Keying	6AW8A (6AW8) *
V5	Video Output	6AQ5A (6AQ5) *
V6	Sound IF Amp.	6AU6A (6AU6) *
V7	Ratio Det. - AF Amp. - AGC Clamper	6T8A (6T8) *
V8	Audio Output	6BQ5
V9	Sync Sep.	6BY6
V10	Vert. Osc. - Vert. Output	6DN7
V11	Horiz. Mult.	6CG7
V12	Horiz. Output	6DQ6B (6DQ6) *
V13	Damper	6AX4GTB
V14	HV Rectifier	1J3

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	G. E. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V15	23KP4A	23KP4A ①				① Aluminized

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	150	165	WT31X130	1-25-70	XA0262.1	WP125.9	TMS-1480	TVL-1540	
C2	150	165	WT31X130	1-25-70	XA0262.1	WP125.9	TMS-1480	TVL-1540	
C3A	▲100	350	WT31X171	AFH3-29-80	C0236	FP331.8	TMT-3441	TVL-2639	
B	■60	350						TVA-1611	
C	▲40	350							
C4A	▲40	350	WT31X172	AFH4-53	D0460	FP413X	TMQ-4406	TVL-4703.7	
B	■40	75							
C	▲40	25							
D	25	25							
C5	40	450	WT31X170	PRS1750	BR4045	TC78	TD-40-450	TVA-1712	
C6	4	50	WT31X133	BCD50004	ECPB804	PET1935	TD-4-50	VL-1303	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	20 NPO 5%			DTZ-20	C10Q2C	CM-19B-200J	CNO-422	10TCC-Q20
C9	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	560 10%		DI-560	DD-561	5R5T56	CCD-561	GP356	10TS-T56
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	68 NPO 5%			DTZ-68	C10Q68C	CM-19B-680J	CNO-468	10TCC-Q68
C14	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C15	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C16	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C17	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C18	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C19	51 NPO 5%			TCZ-51	C10Q51C	CM-19B-510J	CNO-450	10TCC-Q50
C20	1200		DI-1200	DD-121	L10D12	CCD-121	B-212	10TS-D12
C21	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C22	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C23	3 NPO ±.25mmf		NPO-DI 3.3	DTZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C24	5 NPO 10%		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C25	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	33 NPO		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33
C27	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.047 400V		P488N-047	DD-503	CUB4S1	4DP-3-473	GEM-4147	4TM-S47
C31	.022 1600V 10%				DPMS16S22	16DP-5-223	GEM-1612	MB-S20
C32	.0082 1000V 10%		P1084CM-0082		DPMS10D82	16DP-3-802	GEM-16282	MB-D8
C33	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C34	680 2000V		HVD-30-680	DD30-681	HVB20T68	3CCD-681	2HV-368	30GA-T68
C35	470		BPD-00047	DD-471	BYA10T68	CCD-471	B-347	10TS-T47
C36	800		BPD-0008	DD-801	BYA10T47	CCD-801	B-382	10TS-T80
C37	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C38	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C39	120 5%		1469-00012	TCZ-120	22R5T12	CM-19B-121J	CNO-312	MS-312
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C41	.01 200V		P288N-02	D6-103	CUB4S1	4DP-1-103	GEM-411	2TM-S10
C42	1200		DI-1200	DD-121	L10D12	CCD-121	B-212	10TS-D12
C43	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C44	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C45	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C46	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C47	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48	3300 10%		DI-3300		PM6D33	CCD-332	JL-233	10TS-D33
C49	.0033 1600V 10%				DPMS16D33	16DP-2-332	GEM-16233	MB-D33
C50	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C51	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C52	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53	1200 10%		DI-1200	DD-121	5R5D12	CCD-121	GP212	10TS-D12
C54	.015 1000V 10%				DPMS10S15	16DP-4-153		MB-S15
C55	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	10TS-D20
C56	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C57	.022 1000V 10%				DPMS10S22	16DP-5-223	GEM-1612	10TM-S22
C58	.0082 600V 10%		P684CM-0082		DPMSD82	6DP-2-822	GEM-16282	6PS-D82
C59	39 N750 10%		N750-DI 39	TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C60	68 N750 10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C61	1000		BPD-001	DD-102	BYA10D1	CCD-103	B-210	5HK-D10
C62	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C63	.18 200V 10%	#WT25X39			PM6P2			2WF-P18
C64	.0068 400V 10%		V84C6D68-10%		PM6D68	6DP-1-682	GEM-16268	6TM-D68
C65	820 5%		1469-00082		5R5T82	CM-19B-821J	MCE251	MS-382

TV PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C66	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C67	820 10%		DI-820	DD-821	5R5T82	CCD-821	GP382	10TS-T82
C68	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C69	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C70	250 4500V N1600 10%	#WT18X412						
C71	.022 600V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C72	.056 1000V 10%		P1084CM-057		DPMS10S56			
C73	.0047 1600V		P1684CM-0047	DD30-472	DPMS16D47	16DP-2-472	GEM-16247	MB-D47

G. E. Part Number

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	3meg	1/2	WT49X317					Volume
	1.5meg Tap							
B	Switch							Push-Push Off-On
R2A	300K	1/2	WT49X316	AB-50	A47-300K-S	B11-131		Vert. Hold
B	Shaft			AK-33	RS-3/16	SK9		
R3A	400K	1/2	WT49X315	F1-40	RTV-725		■	Brightness
B	4500Ω	1/2		R2-18				Contrast
R4A	3meg	1/2	WT49X319	AB-855		B17-140		Bass
B	Shaft			AK-33		SK9		
R5A	150K	1/2	WT49X318	AB-44	A47-150K-S	B13-138	U42	Treble
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
R6	2000Ω	2(WW)	WT49X277		39-2000	112-2000	FL2K	Vert. Linearity
R7	3meg	1/2	WT49X292	TT-84	B47-3meg-S	HLC3	U59	Height
R8A	40K	1/2	WT49X293	TT-31	B47-50K-S	B11-123	PTA54L	AGC
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R9A	1meg	1/2	WT49X273	TT-69	B47-1meg-S	B11-137	PTA1254L	Horiz. Hold
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

■ "STA-LOC" Equivalent: FB45L, RU452R, OS875A, IS1375.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R10	5000Ω 3W			#WT14X135	R56	470K			
R11	22Ω				R57	3300Ω 1W			
R12	5600Ω				R58	220Ω 1W			
R13	220Ω				R59	2200Ω			
R14	47Ω				R60	120Ω			
R15	1200Ω 1W				R61	22K			
R16	120K				R62	2.2meg			
R17	120K				R63	56K			
R18	220Ω				R64	18K 1W			
R19	33Ω				R65	33K			
R20	6800Ω 2W				R66	33K			
R21	180Ω				R67	330K			
R22	3300Ω				R68	1.5meg			#WT14X118
R23	15K				R69	1meg (Cold)*			* 600K (Hot)
R24	5600Ω				R70	120K			
R25	4300Ω 3W	PW5-4300Ω	3G-4300Ω	#WT14X131	R71	1meg			
R26	2200Ω				R72	1000Ω 1W			
R27	82Ω				R73	10K			
R28	10K				R74	22K			
R29	470K				R75	1000Ω			
R30	4100Ω 4W	PW5-4100Ω	4G-4100Ω	#WT14X132	R76	1000Ω			
R31	220Ω				R77	560K			
R32	5600Ω				R78	390K			
R33	1meg				R79	1.5meg			
R34	270K				R80	82K			
R35	220K				R81	15K 1W			
R36	120K				R82	1meg			
R37	470Ω 1W				R83	62K			
R38	1meg				R84	43K			
R39	100K				R85	33K			
R40	2.2meg				R86	820Ω			
R41	4700Ω				R87	12K			
R42	470K				R88	470Ω			
R43	1.5meg				R89	820K			
R44	6.8meg				R90	100Ω			
R45	180K				R91	12K 3W	PW5-12K	3G-12K	#WT14X126
R46	75K				R92	2200Ω			
R47	47K 1W				R93	4700Ω 7W	PW10-4700Ω	7G-4700Ω	#WT14X133
R48	10K 1W				R94	1500Ω			
R49	270Ω				R95	680Ω 2W			
R50	22K				R96	1.5Ω			
R51	82K				R97	2.2meg			
R52	10meg				R98	1.5meg			
R53	10Ω				R99	100Ω			
R54	470K								
R55	1000Ω								

G. E. Part Number

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		G. E. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke (.1uh)	WT36X413		4580	RTC-8511	T956	
L2	47. 25MC Trap	WT36X414					
L3	1st Video IF	WT36X378					
L4A	2nd Video IF	WT61X101					
B	41. 25MC Trap						

TV PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No	Merit PART No	Miller PART No.	Stancor PART No.	Workman TV PART No	NOTES
L5A	3rd Video IF	WT6X108					
B	47.25MC Trap						
L6	4th Video IF	*					
L7	RF Choke (1.3uh)	WT36X419	BC-561	4602	RTC-8515	T885	* 4th Video IF & Det. Assy #WT6X49
L8	RF Choke (.33uh)	WT36X225		4584	RTC-8512	T957	
L9	Peaking (33uh)		TV-180	6176	RTC-8593	T301	
L10	RF Choke (10uh)	WT36X420	BC-565	4612	RTC-8522	T860	
L11	RF Choke (7.8uh)	WT36X344	BC-565	4611	RTC-8521	T960	
L12	Peaking (390uh)	WT36X264	TV-201	6184	RTC-8578	T321	
L13	Peaking (100uh)	WT36X43	TV-194	6112	RTC-8574	T305	
L14	4.5MC Trap	WT36X435					
B	Sound Takeoff						
L15	Peaking (680uh)	WT36X261	TV-206	6148	RTC-8583	T327	
L16	Peaking (100uh)	WT36X434	TV-196	6120	RTC-8575	T306	
L17	RF Choke (10uh)	WT36X401	BC-565	4612	RTC-8522	T860	
L18	Peaking (100uh)	WT36X434	TV-196	6120	RTC-8575	T306	
L19	Peaking (300uh)	WT36X375	TV-199	6135	RTC-8579	T318	
L20	Ratio Detector	WT36X48					
L21	Audio Choke (180MH)	WT36X416	BC-535	961		T916	
L22	RF Choke (10uh)	WT36X34	BC-566	4613	RTC-8523	T860	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No	Merit PART No	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L33	Horiz. Stabilizer	WT36X436					HS-11		
L34	Width Coil	WT36X409							

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 °C)	REPLACEMENT DATA G. E. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L35	.380A	70Ω	.9 Hy.	WT63X58			C-2343		C-34X	

TRANSFORMER (POWER)

ITEM No	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA G. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ 1.8A	115V @ .900A AC	24V @ 1. 2A AC Tap @ 6.3V @ 8.5A AC	WT86X48					① Part #WT86X49 used in Models M870VWD, M871VWD

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No	Merit PART No	Rogers PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T2	Vert. Osc.	WT64X54	A-3004 ①		A-8126 ①	26A02 ①	A-120Z ①	
T3	Vert. Output	WT64X77						
T4	Yoke (Horiz. 12MH) (114°) (Vert. 39.53MH)	WT76X31			DY-40A ③	Y-51 ②	Y-70-1 ③	
	Yoke Clamp Assy.	WT5X37						
T5	Horiz. Output	WT77X45 ⑤					D-164 ④ *	

① Bend tabs downward and solder to etched board. Connect blue to green. Connect yellow to grid capacitor, blue and green leads to cathode, red to ground.
② Use original vert. yoke damping resistor if necessary.
③ Connect yoke terminal #2 to horiz. output terminal #1. Remove lead from terminal #7. Connect .056 capacitor from terminal #7 to terminal #3 of width switch.
④ Use original filament lead.
⑤ Resistive filament leads Part # WT65X19.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
3					2
2					3
1					4
5					1
4					6
6					5

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA G. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	6600Ω	3-4Ω	WT64X81	A-3020	A-3823	26S48	S-18X	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V C IMP	REPLACEMENT DATA G. E. PART No.	QUAM PART No.	NOTES
SP1	6" x 9"	PM	3-4Ω	WT95X29	69A2	
SP2	6" x 9"	PM	3-4Ω	WT95X29	69A2	
SP3	6" x 9"	PM	3-4Ω	WT95X29	69A2	

SPEAKER (cont)

ITEM No.	TYPE SIZE	FIELD	V C IMP	REPLACEMENT DATA G. E. PART No.	QUAM PART No.	NOTES
SP4	6" x 9"	PM	3-4Ω	WT95X29	69A2	
SP5	ELECTROSTATIC			WT95X36		
SP6	ELECTROSTATIC			WT95X36		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G. E. PART No	REPLACEMENT DATA
K1	Video Amp. Grid	4700mmf, 68K	WT24X9	
K2	Sync Detector Load	800mmf, 22K	WT24X5	Centralab RC-476 Sprague PRC-4
K3	Sync Sep. Grid	470mmf, 470K	WT24X3	Centralab RC-465 Sprague PRC-3

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA G. E. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.300A	WT57X22 *	1N1763 +	40H +	SR200 +	* Dual Germanium Type + Silicon Type (2 Reqd)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA G. E. PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M2	N	.3A 250V S/B	WT6X30	WT6X61	333.300 (N .3A 250V S/B)	346001	N 3/10	HN 0 to 3/10
M3	N	3|A 250V S/B			33303.5 (N 3|A 250V S/B)	346018	N 3½	HN 3½ to 3½
M4	1½" length #26 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA G. E. PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M5		WT6X7 *	8GC1 *	1N87	1N87	* Dual Diode (Common Cath. Type) + Video Detector
M6		WT6X3 +				

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M7	Tuner	WT63X100	VHF
	Tuner	WT63X101	VHF with UHF Provisions
M8	Switch	WT39X8	Phono-TV (DPDT Slide Type)
M9	Switch	WT39X5	Width (Rotary Type)
M10	Switch	WT39X7	Program (Power Tuning)
M11	Switch		Detent (Power Tuning)
M12	Switch		Muting (Power Tuning), Actuated by Motor
M13	Magnet	WT42X31	Ion Trap
M14	Magnet	WT50X1	Pincushion
M15	Motor	WT72X9	Power Tuning

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-In	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor

REMOTE CONTROL RECEIVER PARTS LIST

TUBES

ITEM No.	* GENERAL ELECTRIC * USE	TYPE	ITEM No.	* RAYTHEON * USE	TYPE	* SYLVANIA *
V16	RF Amp.	6BW6	V17	Det. - AF Amp.	6GH8	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C74A	▲60	150	WT3UX74	AFH4-02-20	D0695.3	FP430.32	T3EQ-4397	TVL8-4411.7*	
B	▲20	150							

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING CAP.	VOLT.	REPLACEMENT DATA G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C74C	▲5	50							
D	5	50							
C75A	▲10	25	WT3UX75	AFH4-03	D0030	FP434	T3EQ-4292	TVL-4412	
B	▲10	25							
C	▲10	25							
D	10	25							
C76	1	300NP	WT3UX78				TC895 †		

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Use 2 units. Connect negative terminals together. Connect positive terminals into circuit the same as the original non-polarized unit.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C77	5-80					462		
C78	22 10%	Note 1				CM-19B-220K	CNO-422	MS-422
C79	27 10%	Note 1	1469-000027	TCC-27	22S5Q27	CM-19B-270K	CNO-427	MS-427
C80	1800 10%		DI-1800	DD-182	5R5D8	CCD-182	GP218	10T8-D18
C81	.1 200V		P383N-1	DF-104	CUB2P	2DP-3-104	GEM-201	2TM-P10
C82	180 10%		1469-00018	TCS-180	22S2T18	CM-19B-181K	CNO-318	MS-318
C83	180 10%		1469-00018	TCZ-180	22S5T18	CM-19B-181K	CNO-318	MS-318
C84	10000		BPD-01	DD-103	BYA10B1	CCD-103	B-102	5HK-B10
C85	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10T8-T80
C86	10000		BPD-01	DD-103	BYA10B1	CCD-103	B-102	5HK-B10
C87	.039 400V 10%		P684CM-039		DPM2M3S9	6DP-3-393	GEM-1614	ET5-S21
C88	5000		BPD-005	DD-502	BYA10D6	CCD-502	B-250	5HK-D50
C89	1000		EF-001	MFT-1000		CCF-102	CT280A	
C90	1000		EF-001	MFT-1000		CCF-102	CT280A	
C91	1000		EF-001	MFT-1000		CCF-102	CT280A	
C92	1000		EF-001	MFT-1000		CCF-102	CT280A	
C93	.0047 600V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C94	.01 800V		P688N-01	D6-103	CUB6S3	6DP-3-103	GEM-611	6TM-S10

Note 1. Values may vary. Replace with original value.

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	REPLACEMENT DATA G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R100	500K	½	WT49X304					Remote Volume Sensitivity
R101	10K	½	WT49X295					

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No	REMARKS
R102	10K			
R103	270Ω			
R104	2.2meg			
R105	470K			
R106	560K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No	WORKMAN TV PART No	REMARKS
R107	100K			
R108	8200Ω			
R109	470			
R110	15K 1W			
R111	12K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA G. E. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L26	Loopstick	WT5UX16					
L27	322.7KC Trans.	WT6UX103					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA G. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	117V @ .050A	100V @ .015A	6.3V @ DC .850A	WT86X40					

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA G. E. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M16	.015A	WT57X23 †	1N1763 †	2F4 †	SR200 †	† Germanium Type † Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M17	Relay	WT-82X22	Bi-Stable, Latching
M18	Relay	WT-62X27	Reed
M19	Relay		Off-On Sensitive
M20	Relay		Channel Selector Sensitive
M21	Relay		Volume Sensitive
M22	Relay		Volume Sensitive
M23	Motor	WT-72X7	Volume

REMOTE CONTROL TRANSMITTER PARTS LIST

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N319	Oscillator				PNP

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C95	.27 200V 10%	#WT25X42						2WF-P27
C96	.045 500V 10%				DPMS8S47	6DP-3-473		6PS-S47
C97	.1 200V 10%		V84C2P1-10%		DPMS2P1	2DP-3-104	GEM-201	2WF-P10
C98	.22 200V 10%		V84C2P22-10%		DPMS2P22	2DP-4-224	GEM-2022	2WF-P22
C99	4700 10%		DI-4700		IR5D47	CCD-472	JL-247	10TS-D47
C100	130 N750 10%	#WT18X409		TCN-130	C10T13U			
C101	25-280	#WT30X51				464		

G. E. Part Number

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R112	47K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R113	5600Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		G. E. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L28	405CPS Osc.	WT35X42					
L29	375CPS Osc.	WT35X43					
L30	345CPS Osc.	WT35X44					
L31	315CPS Osc.	WT35X45					
L32	Antenna	WT83X21					
L33	Antenna	WT83X22					

BATTERIES

ITEM No.	VOLTAGE	G. E. PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M24	9V	WT58X1				E146		TR-146R	

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M25	Switch	WT55X25	Wafer and Contact Assembly

TUNER PARTS LIST AND DESCRIPTIONS

WT86X100

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ES8	V202	Mixer - Osc.	6EA8

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	9 NPO ±.5mmf		NPO-DI 10	DTZ-10	C10V9C	CCTO-100	CNO-410	10TCC-Q10
C202	22 N750 5%			DTZ-22	C10Q22U		CN7-422	10TCU-Q22
C203	2.2		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C204	15 N750 5%			DTN-15	C10Q22U		CN7-415	10TCU-Q15
C205	2.8 5%							10TCC-V27
C206	1000		EF-001	MFT-1000		CCF-102	CT280A	
C207	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C208	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C209	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C210	1-3.6			829-4		CV-2	CT551	
C211	33 N1500 5%	#WT18X293		TCL-33		*		
C212	.33 10%	#WT2LX43						
C213	1.5 10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C214	2.2 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C215	1.8 N470 5%	#WT18X399						
C216	1-3.6			829-4		CV-2	CT551	
C217	1.1 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V12
C218	800		BPD-0008	DD-801	L10T8	CCD-801	B-382	10TS-T80
C219	6	Note 1						
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	
C221	15 N750 5%			DTN-15	C10Q15U		CN7-415	10TCU-Q15
C222	10 P100 ±.5mmf	#WT18X415						
C223	.5-2			829-3		CV-1	CT565	
C224	1000		EF-001	MFT-1000		CCF-102	CT280A	
C225	1000		EF-001	MFT-1000		CCF-102	CT280A	
C226	1000		EF-001	MFT-1000		CCF-102	CT280A	

G. E. Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

Note 1. ±.6mmf, P100, N30 (Part #WT23X22).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	10K			
R202	5600Ω			
R203	22Ω			
R204	82K			
R205	22K			
R206	82K			
R207	150K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R208	3300Ω			
R209	10K			
R210	4700Ω			
R211	150K			
R212	10K			
R213	10K			
R214	10K			

COILS (RF-IF)

ITEM No.	USE	G. E. PART No.	NOTES
L201	Ant. Trans.	WT37X35	
L202	Ant. Coils	WT52X172	Channels 2-13, Includes Wafer Assembly
L203	1st RF Coils	WT52X171	"
L204	2nd RF Coils	WT52X170	"

ITEM No.	USE	G. E. PART No.	NOTES
L205	Mixer Grid Coils	WT52X169	Channel 2-13, Includes Wafer Assembly
L206	Osc. Coils	WT52X159	"
L207	Mixer Plate Coil	WT36X431	
L208	RF Choke	WT36X441	

MISCELLANEOUS

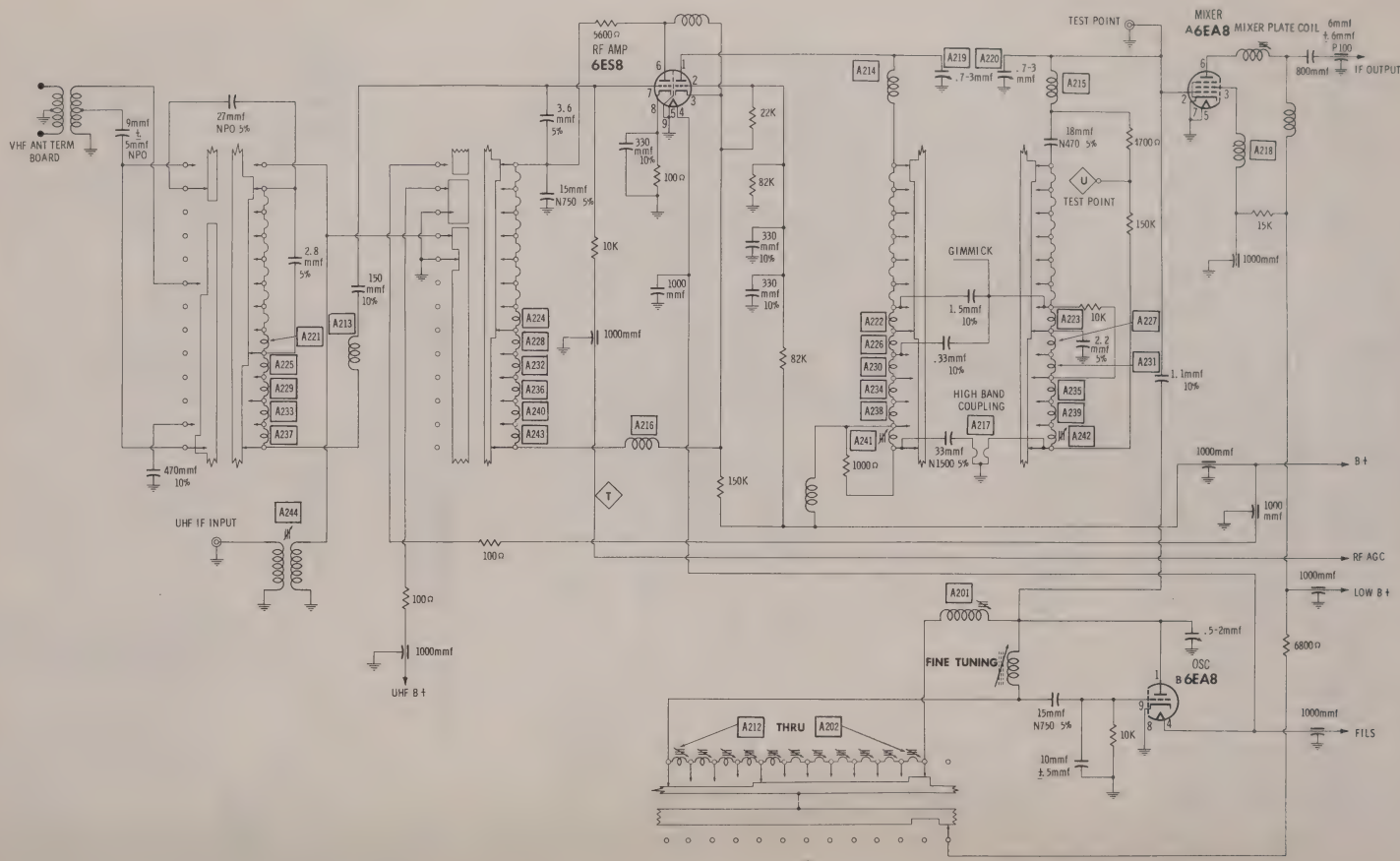
ITEM No.	PART NAME	G. E. PART No.	NOTES
	Front Plate, Bracket and Detent Spring	WT92X248	Assembly, Less Detent Ball, "C" Washer & Switch Shaft
	Switch Shaft and Index Plate	WT69X212	Assembly

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

ITEM	PART NUMBER	MODEL M870VWD	M871VWD	R870VML	R870VWD
Safety Glass	WT94X85	X	X		X
Safety Glass	WT94X86			X	
Mask	WT96X58	X	X		X
Mask	WT96X57			X	
Knob, VHF Channel Sel.	WT43X320	X	X		
Knob, VHF Channel Sel.	WT43X316			X	X
Knob, UHF Channel Sel.	WT43X289		X		
Knob, UHF Indicator	WT43X286		X		
Knob, Fine Tuning	WT43X317	X	X	X	X
Knob, Volume On-Off	WT43X319	X	X	X	X
Knob, Contrast	WT43X318	X	X	X	X

ITEM	PART NUMBER	MODEL M870VWD	M871VWD	R870VML	R870VWD
Knob, Brightness	WT43X297	X	X	X	X
Knob, Tone	WT43X321	X	X	X	X
Pushbutton (Transmitter)	WT47X37			X	X
Cabinet Top (Transmitter)	WT89X130			X	X
Cabinet Bottom (Trans.)	WT4X57			X	X
Cabinet, TV	WT103X339	X	X		
Cabinet, TV	WT103X332				X
Cabinet, TV	WT103X333			X	
Cabinet Base and Leg Assy	WT101X217				X
Leg (Right	WT78X114	X	X		
Leg (Left)	WT78X113	X	X		



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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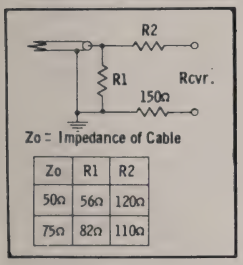
VHF TUNER with UHF Provisions - WT86X101

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect bias as under "VHF RF and Mixer Alignment".
Disconnect IF Output and terminate with a 68Ω resistor at the open end.
Remove UHF Mixer Crystal.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to point Ⓥ. Low side to chassis.	43.5MC (10MC Swp)	40.5MC 45.75MC	UHF Tune UHF for MINIMUM tilt over center tuning area	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A241, A242, A243, A244	Adjust A241 for correct placement of 40.5 MC marker. (See Fig. 205). Adjust A242 and A243 for maximum gain and symmetry. Adjust A244 for maximum gain and zero tilt.



Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG. 201

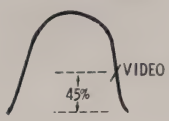


FIG. 202

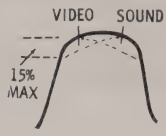


FIG. 203

FIG. 204

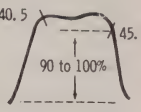
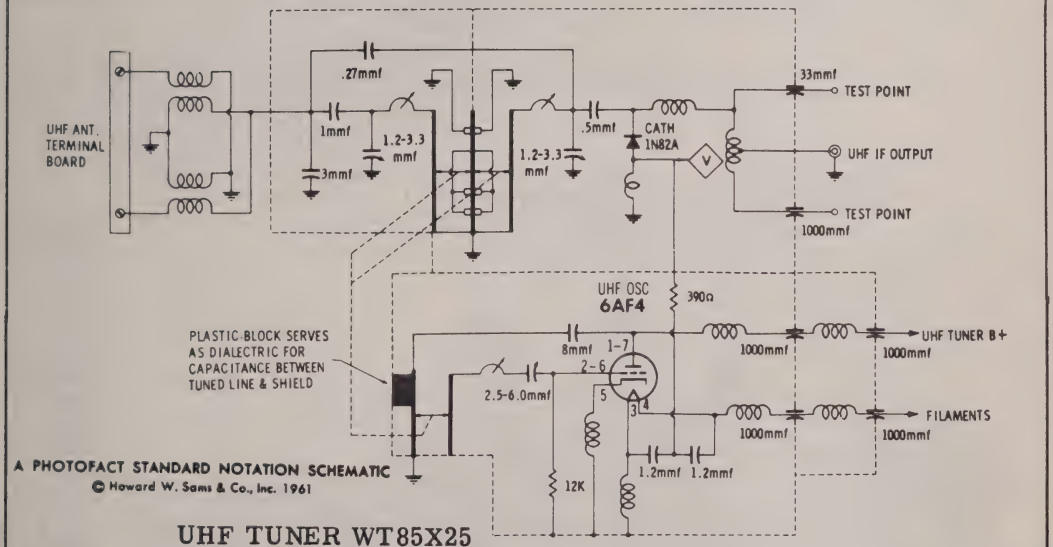
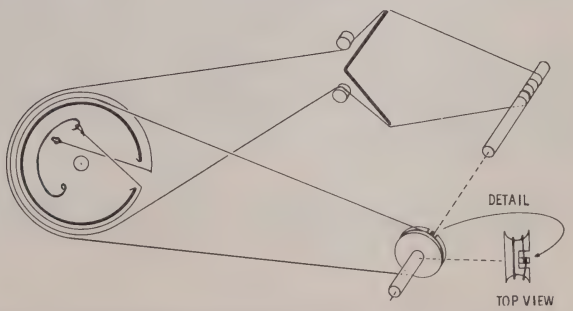


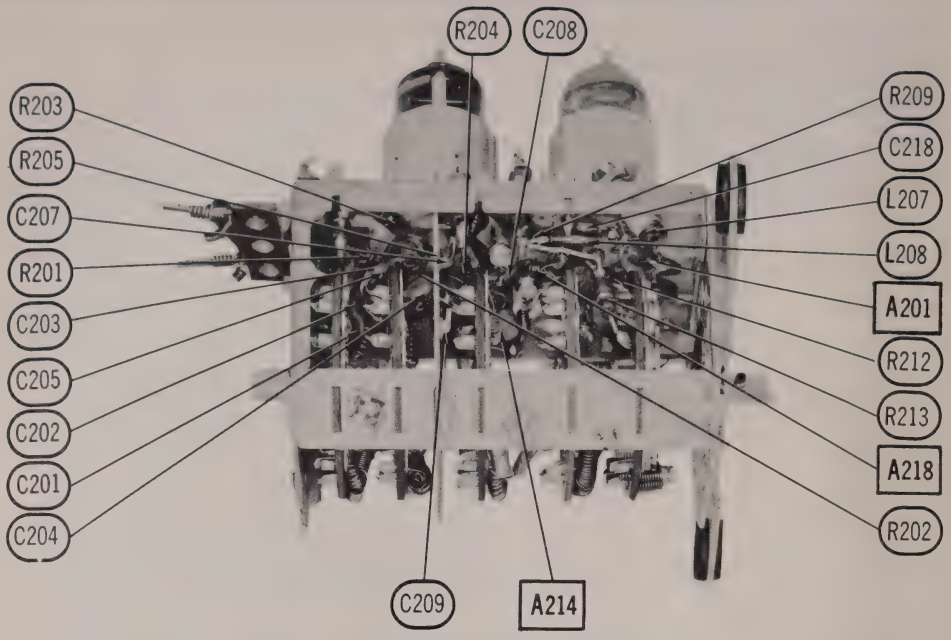
FIG. 205



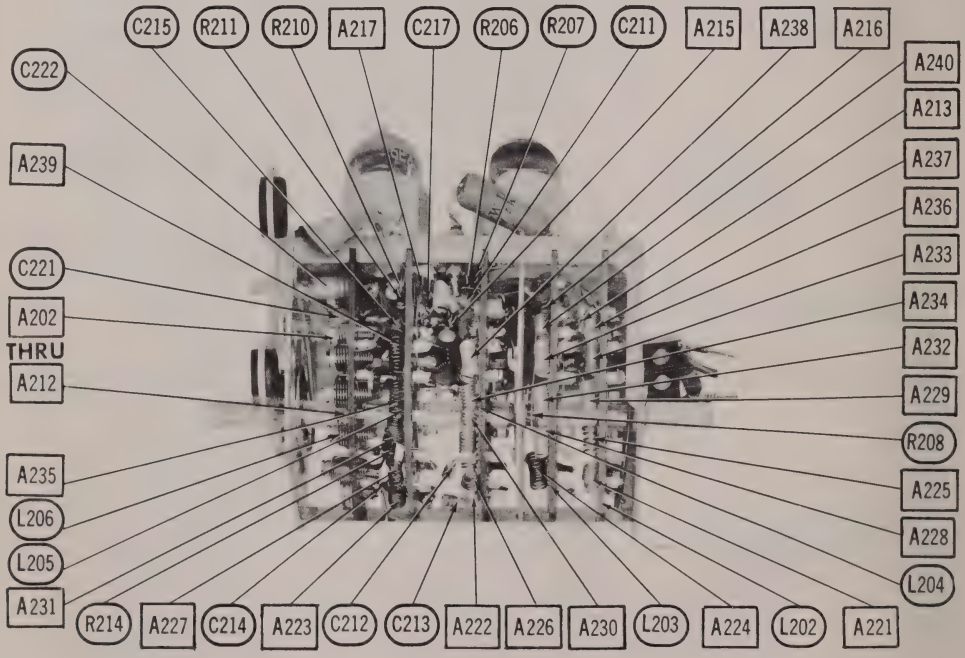
UHF TUNER WT85X25

UHF DIAL CORD STRINGING

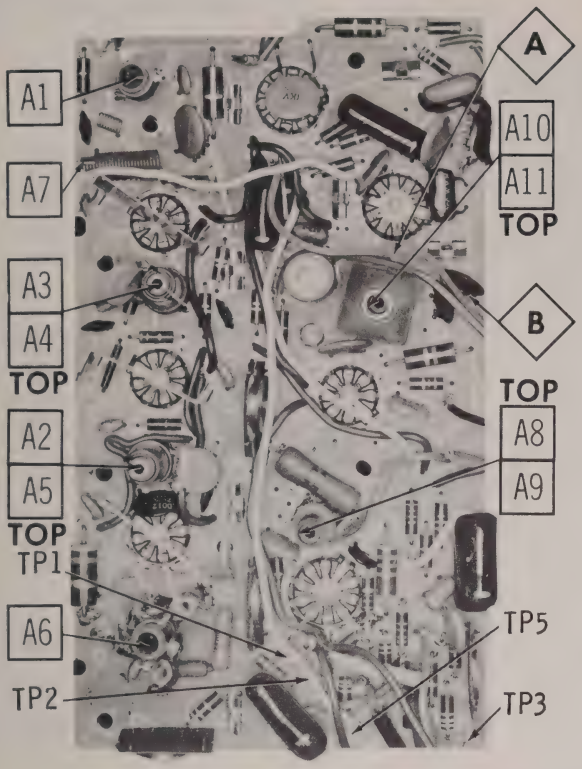




VHF TUNER WT86X100 - LEFT SIDE



VHF TUNER WT86X100 - RIGHT SIDE



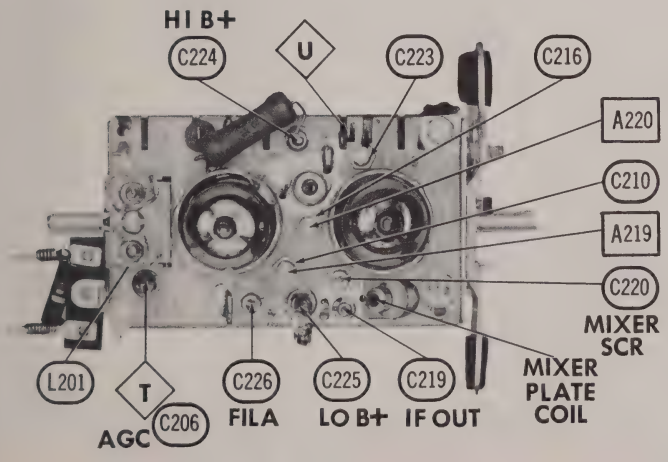
TP1 -.9V
VIDEO DET OUTPUT

TP2 -.8V
SYNC INPUT

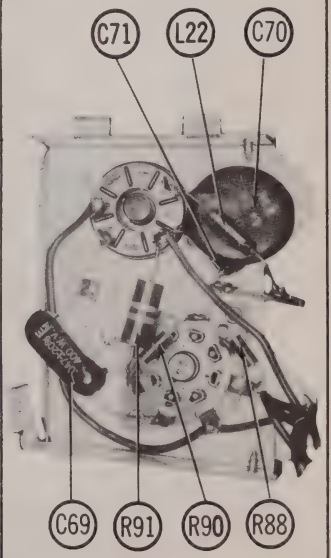
TP3 0V
VIDEO OUTPUT GRID

TP5 12V
IF AGC

VIDEO & SOUND ALIGNMENT IDENT.

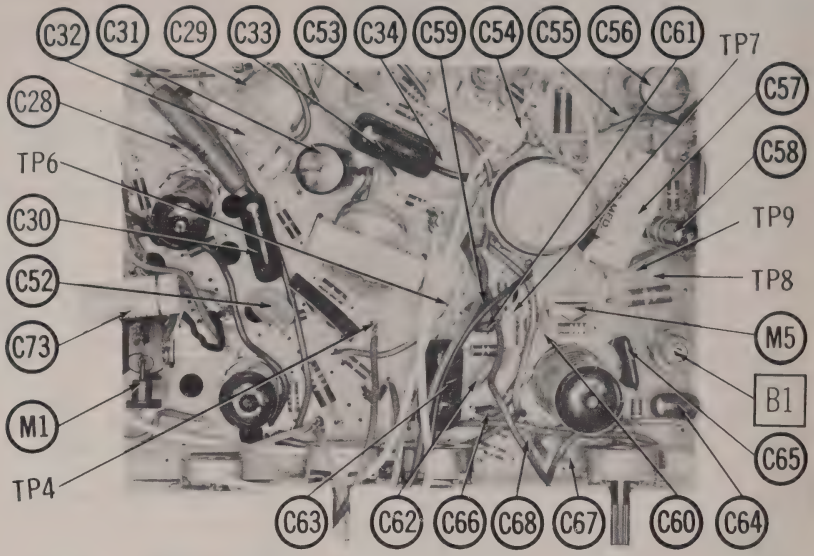


VHF TUNER WT86X100 - TOP VIEW

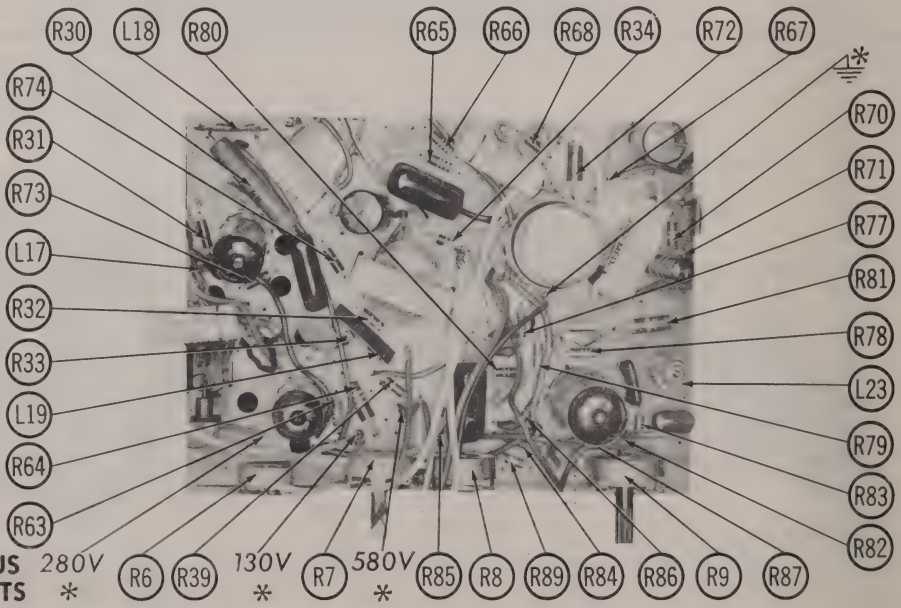


DAMPER, HORIZ.
OUTPUT SUBCHASSIS

TP4 0V PIX TUBE GRID
TP6 140V SYNC SEP OUTPUT
TP7 .2V HORIZ AFC INPUT
TP8 260V HORIZ MULT PLATE CIRC
TP9 260V HORIZ MULT B +



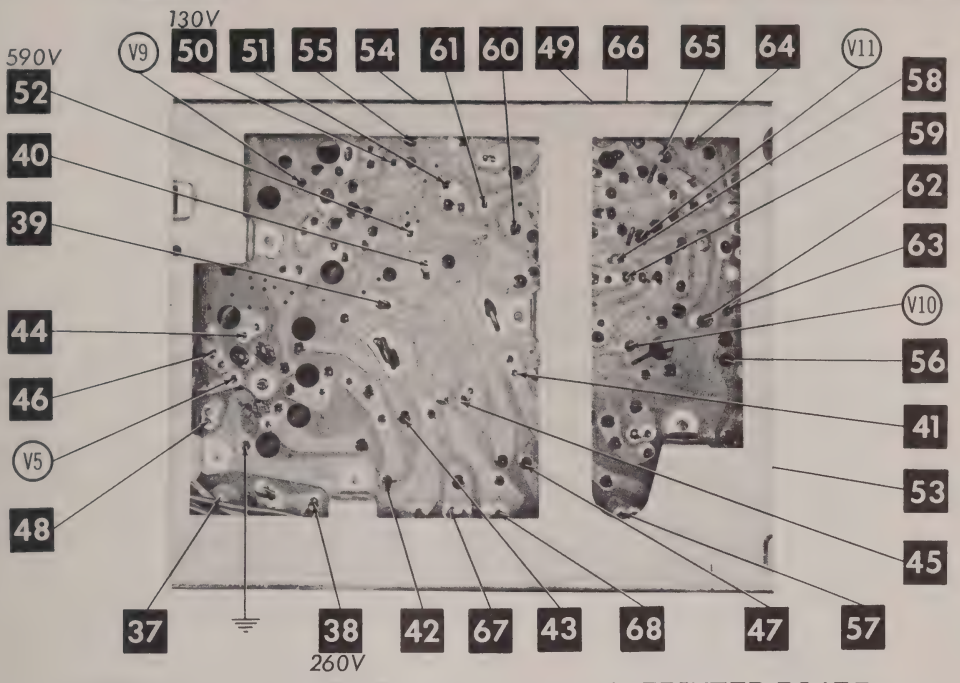
VIDEO OUTPUT, SYNC, VERT., HORIZ. PRINTED BOARD
CAPACITOR, MISC., TEST POINT IDENT.



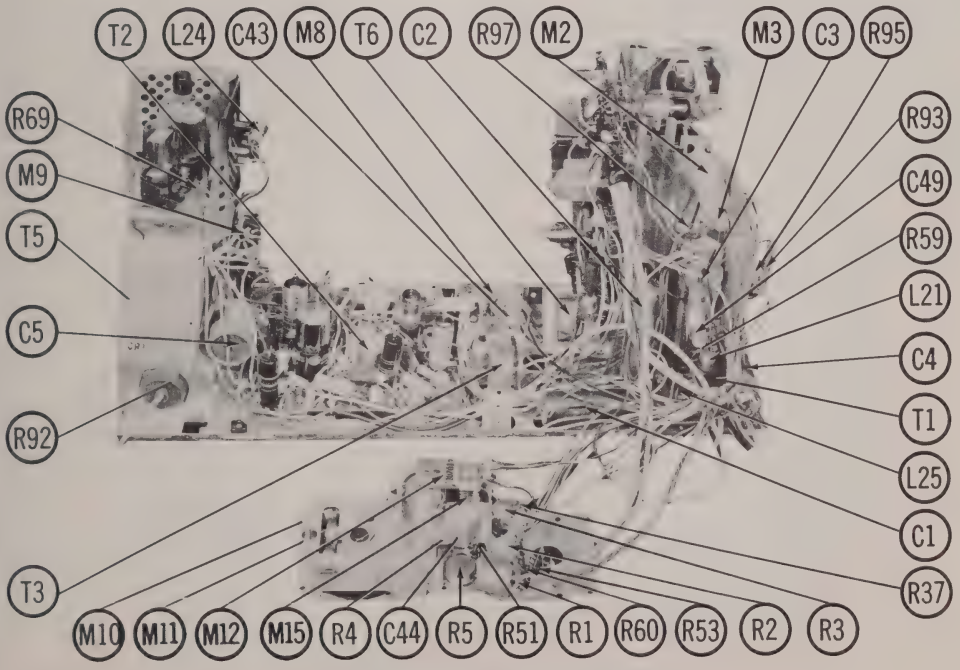
VIDEO OUTPUT, SYNC, VERT., HORIZ. PRINTED BOARD
RESISTOR, INDUCTOR, FOCUS POINT IDENT.

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



VIDEO OUTPUT, SYNC, VERT., HORIZ. PRINTED BOARD



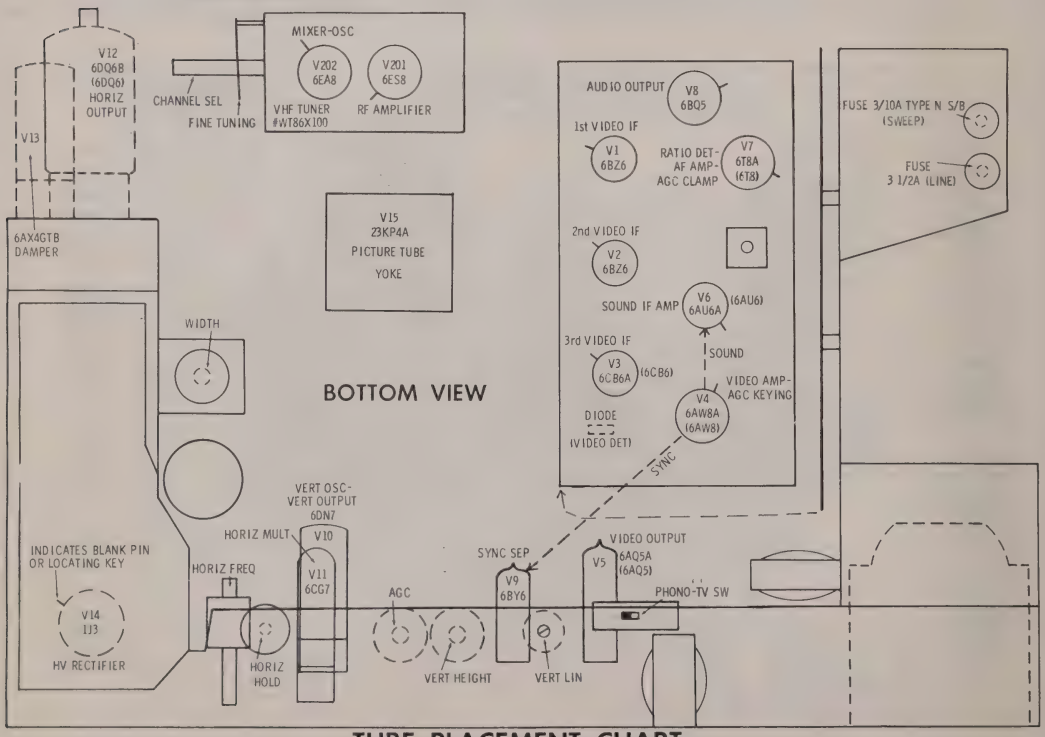
TV CHASSIS - FRONT VIEW

RESISTANCE MEASUREMENTS

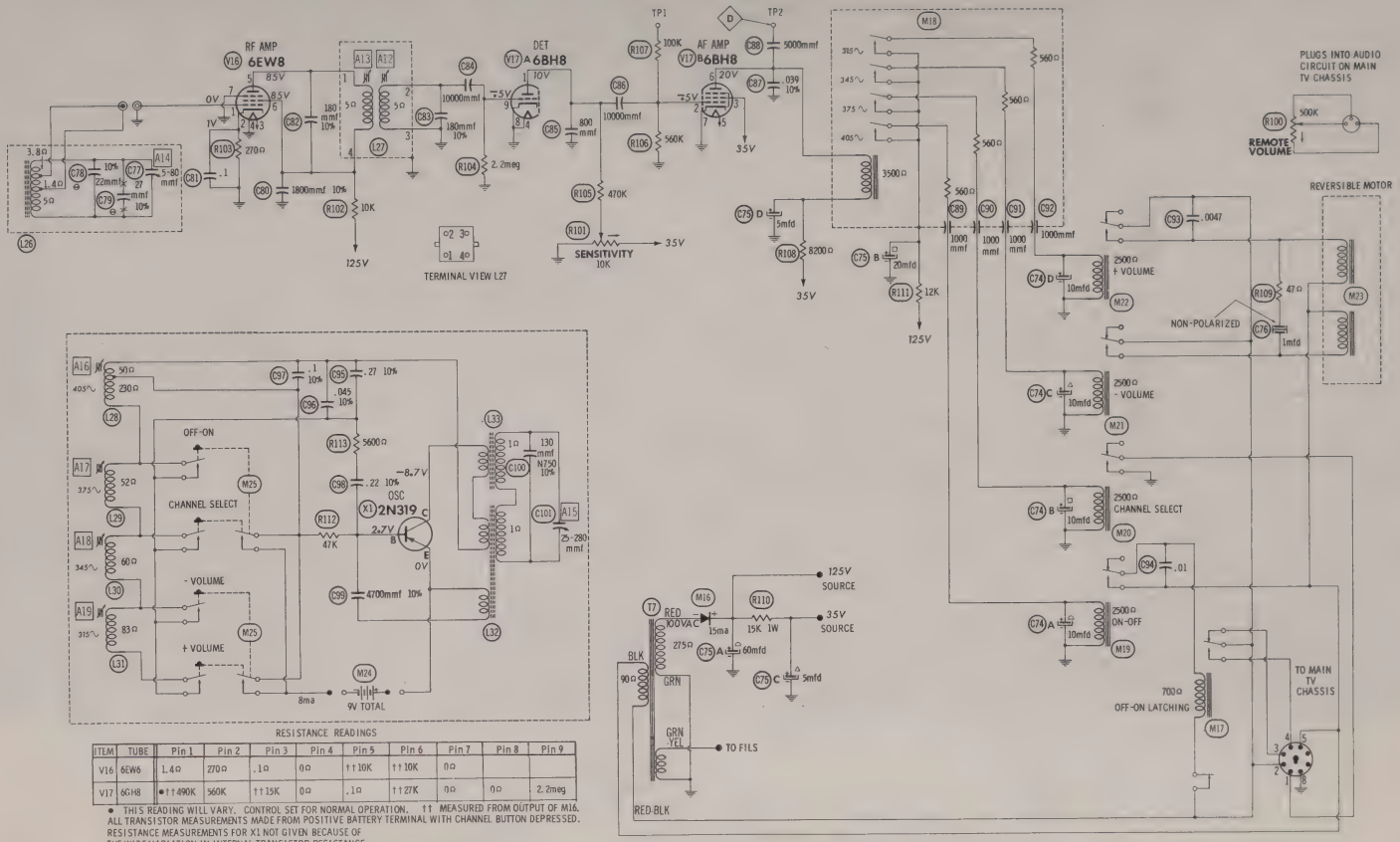
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	2meg	1250Ω	.1Ω	0Ω	▪ 250Ω	▪ 250Ω	0Ω		
V2	6BZ6	85K	INF	.1Ω	0Ω	†300Ω	†300Ω	▪33Ω		
V3	6CB6A	.1Ω	180Ω	.1Ω	0Ω	†6800Ω	†6800Ω	0Ω		
V4	6AW8A	• 15K	4700Ω	1.5meg	.1Ω	0Ω	82Ω	71K	†4700Ω	†4300Ω
V5	6AQ5A	470K	• 800Ω	.1Ω	0Ω	†4100Ω	†680Ω	NC		
V6	6AU6A	3.6Ω	0Ω	.1Ω	0Ω	†15K	†15K	270Ω		
V7	6T8A	INF	22K	INF	.1Ω	0Ω	4.2meg	0Ω	10meg	470K
V8	6BQ5	NC	470K	220Ω	.1Ω	0Ω	NC	†925Ω	NC	†2200Ω
V9	6BY6	1.6meg	0Ω	.1Ω	0Ω	†56K	†23K	2.2meg		
V10	6DN7	1.2meg	†2700Ω	• 2500Ω	• 580K	•† 5meg	130Ω	.1Ω	0Ω	
V11	6CG7	†15K	3meg	820Ω	0Ω	.1Ω	†76K	62K	820Ω	0Ω
V12	6DQ6B	TP	0Ω	NC	†12K	820K	TP	.1Ω	0Ω	TOP CAP †20Ω
V13	6AX4GTB	NC	NC	¶	NC	†70Ω	NC	0Ω	.1Ω	
V14	1J3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †380Ω
V15	Z3KP4A	.1Ω	NC	†100K	†1meg	NC	1meg	• 400K	0Ω	
V201	6ES8	†5000Ω	†85K	†65K	.1Ω	0Ω	†65K	4.2meg	22Ω	0Ω
V202	6EA8	†15K	155K	†15K	.1Ω	0Ω	†4700Ω	0Ω	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 3 OF V13.
† MEASURED FROM OUTPUT OF M1.
▪ MEASURED FROM PIN 2 OF V2.

NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



RESISTANCE READINGS

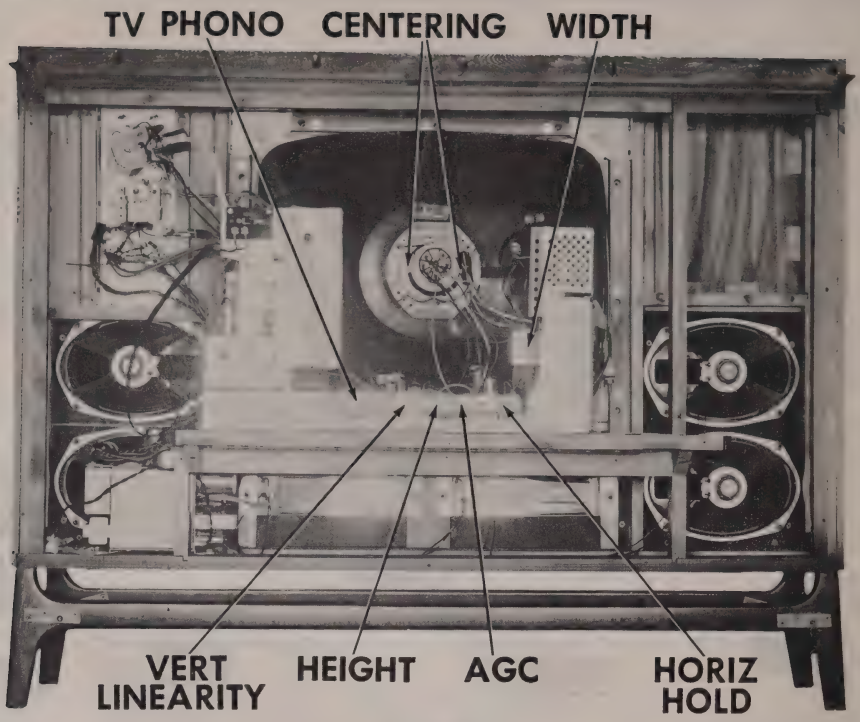
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V16	6EW6	1.4Ω	270Ω	.1Ω	0Ω	††10K	††10K	0Ω		
V17	6GH8	•††490K	560K	††15K	0Ω	.1Ω	††27K	0Ω	0Ω	2.2meg

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION. †† MEASURED FROM OUTPUT OF M16. ALL TRANSISTOR MEASUREMENTS MADE FROM POSITIVE BATTERY TERMINAL WITH CHANNEL BUTTON DEPRESSED. RESISTANCE MEASUREMENTS FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

REMOTE CONTROL RECEIVER & TRANSMITTER RW-461

GENERAL ELECTRIC MODELS M870VWD, M871VWD, R870VWD, R870VML (Ch. U5)

FOLDER 1



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune the receiver to a weak signal and adjust the controls for a normal picture.

Connect a short clip lead from TP-7 to chassis. Connect a 2200 ohm resistor from TP-8 to TP-9.

Adjust the Horizontal Hold control to the point where the picture appears to float back and forth across the screen.

Remove the 2200 ohm resistor and adjust the Horizontal Frequency Slug (B1) until the picture again appears to float back and forth across the screen. Remove the clip lead from TP-7 and chassis.

DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL MODEL R870VWD

1. Remove 12 wood screws holding rear cover.
2. Remove rear cover.
3. Remove 8 push-on type control knobs.
4. Remove 4 nuts holding VHF tuner and control mounting bracket inside cabinet.
5. Remove picture tube socket, yoke, and high voltage lead.
6. Remove speaker plug and remote control receiver plug.
7. Remove 4 chassis bolts.
8. Remove chassis.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder with CIRCUITRACE*

TRUETONE
MODELS 2DC1140A, 2DC1142A

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

TRUETONE
MODELS 2DC1140A, 2DC1142A

MODEL 2DC1140A

TRUETONE
MODELS 2DC1140A, 2DC1142A

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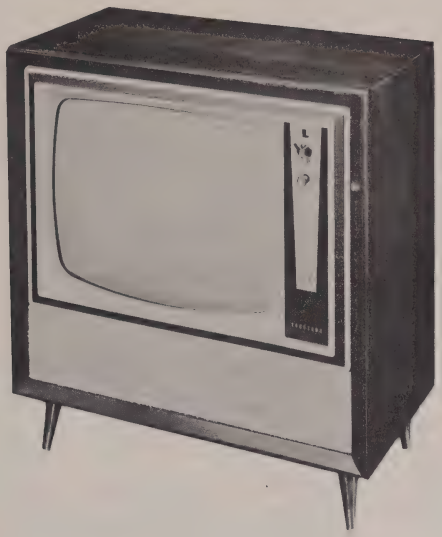
TRUETONE
MODELS 2DC1140A, 2DC1142A

TRUETONE
MODELS 2DC1140A, 2DC1142A



MODEL 2DC1140A

TRADE NAME	Truetone, Models 2DC1140A, 2DC1142A
SUPPLIER	Western Auto Supply Co., 2107 Grande Avenue, Kansas City, Missouri
TYPE SET	Television Receiver
TUBES	VHF - Seventeen, UHF - Eighteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 185 Watts, 1.65 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass is an integral part of the picture tube.

FUSE

A 3/4A S/B fuse is used for low voltage supply protection. (For location, see "Tube Placement Chart".)

A fuse wire is used for filament protection. (For location, see M2 in photo "Chassis - Bottom View".)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove the plug button located near Channel Selector Knob. This provides access to Osc. Slug of each channel indicated by Channel Selector.

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see photo "Cabinet - Rear View".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Frequency Slug is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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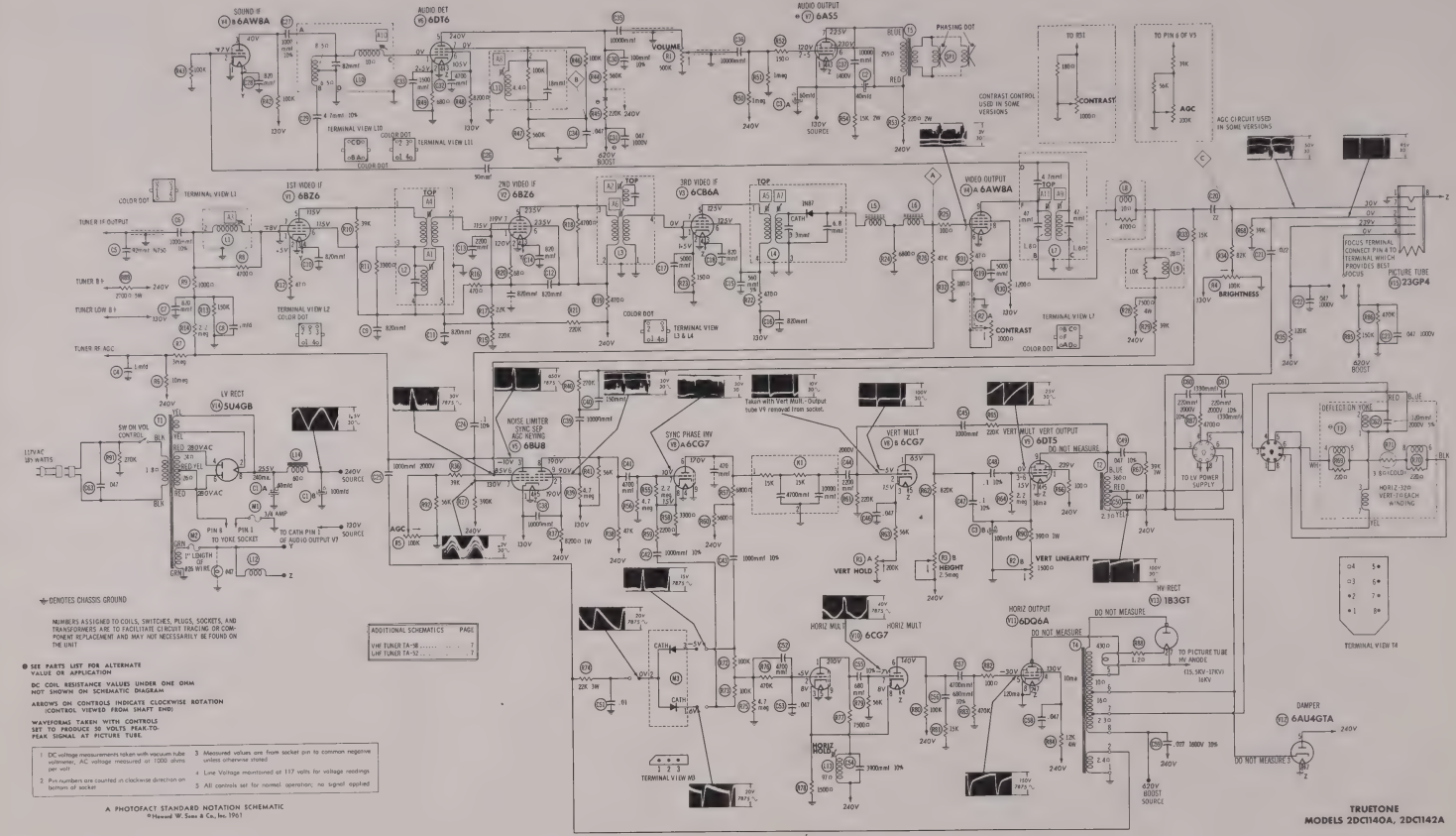
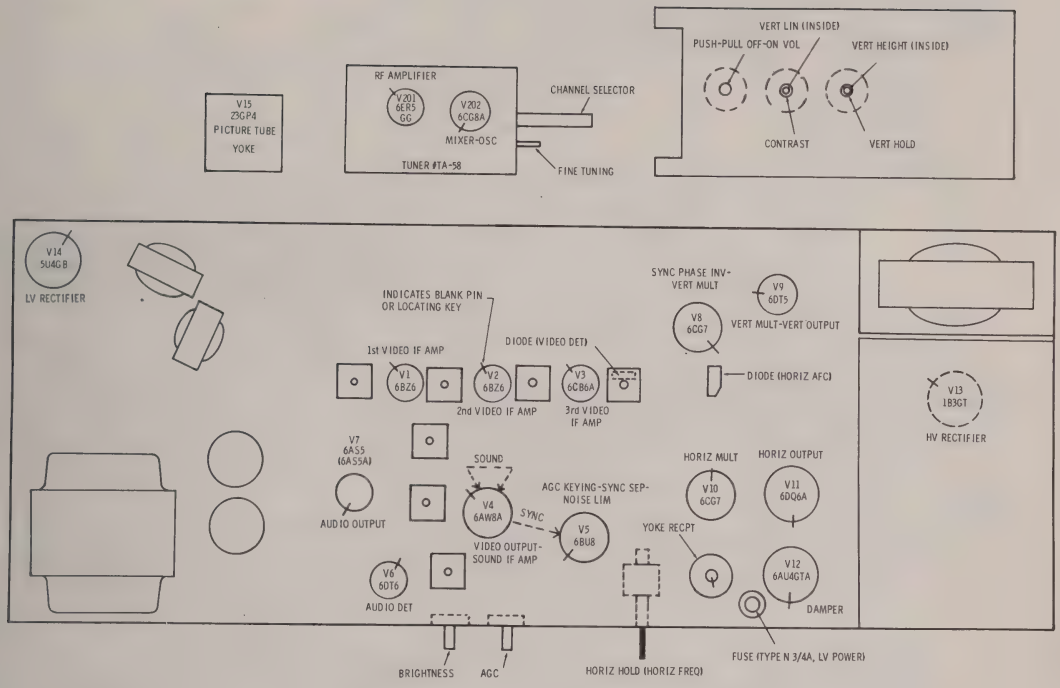
KA499

SET 519 FOLDER 2


SOUND IF V1 6AW8A
AUDIO DET V2 6DT6
AUDIO OUTPUT V7 6A55
VOLUME
PHASING DOT
CONTRAST CONTROL USED IN SOME VERSIONS
TO IS1
CONTRAST
TO PIN 6 OF V5
AGC
AGC CIRCUIT USED IN SOME VERSIONS
TERMINAL VIEW L1
COLOR DOT
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6A
VIDEO OUTPUT V4 6AW8A
TERMINAL VIEW L2
TERMINAL VIEW L3 & L4
TERMINAL VIEW L7
TUNER IF OUTPUT
TUNER B+
TUNER LOW B+
TUNER RF AGC
FOCUS TERMINAL CONNECT PIN 6 TO TERMINAL WHICH PROVIDES BEST FOCUS
PICTURE TUBE V13 23GP4
BRIGHTNESS
CONTRAST
LV RECT V14 5U4GB
SW ON VOL CONTROL
115VAC 50-60 CYCLES
1.5 AMP
TO CATH PIN 3 OF AUDIO OUTPUT V7
PIN 6 TO YOKE SOCKET
1" LENGTH GRN WIRE
NOISE LIMITER SYNC SEP. AGC KEYING V5 6BU8
SYNC PHASE INV V6 6CG7
VERT MULT V8 6CG7
VERT MULT VERT OUTPUT V9 6DT5
DO NOT MEASURE
Taken with Vert Mult.-Output tube V9 removed from socket.
VERT HOLD
HEIGHT
VERT LINEARITY
TO LV POWER SUPPLY
DEFLECTION YOKE
BLUE
RED
YEL
BLK
HORIZ 320 VERT 70 EACH WINDING
HV RECT V12 1B3GT
TERMINAL VIEW T4
HORIZ MULT V10 6CG7
HORIZ OUTPUT V11 6DQ6A
TO PICTURE TUBE HV ANODE
15.5KV-17KV) 1mA
DAMPER V15 6AU4GTA
620V BOOST SOURCE
TERMINAL VIEW V3
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
ADDITIONAL SCHEMATICS PAGE
VHF TUNER TA-58 7
UHF TUNER TA-52 7
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation; no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1961
TRUETONE MODELS 2DC1140A, 2DC1142A

TUBE PLACEMENT CHART

TOP VIEW



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (LV Power), V14, Fuse (Fil.)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V15
No vertical deflection V8, V9
Poor vert. linearity or foldover V8, V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V8, V9
Horiz. off freq. Diodes (Horiz. AFC), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V20i, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5, V8
No horiz. sync V5, V8, Diodes (Horiz. AFC)
No vert. or horiz. sync V5, V8

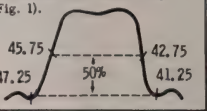
ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Set Contrast fully clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

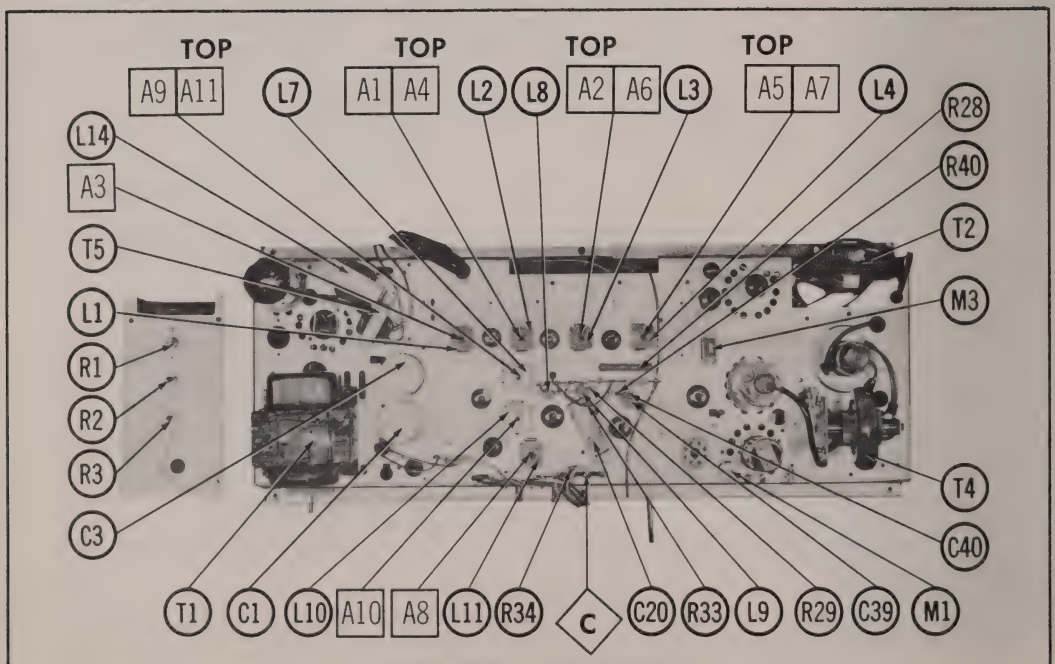
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44MC (10MC Swp)	41.25MC	Any non-interfering channel	Vert. Amp. thru 47K to point (A). Low side to chassis. (Across Video Det. load)	A1	Adjust to place marker in 41.25MC trap notch. (See Fig. 1). FIG. 1 
2.	"	"	"	47.25MC	"	"	A2	Adjust to place marker in other trap notch.
3.	"	"	"	42.75MC 45.75MC	"	"	Mixer Plate Coil & A3 thru A7	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate Coil and A3 for maximum gain. A4 and A5 to shape high frequency side of response curve. A6 and A7 is adjusted to shape low frequency side.

SOUND IF ALIGNMENT

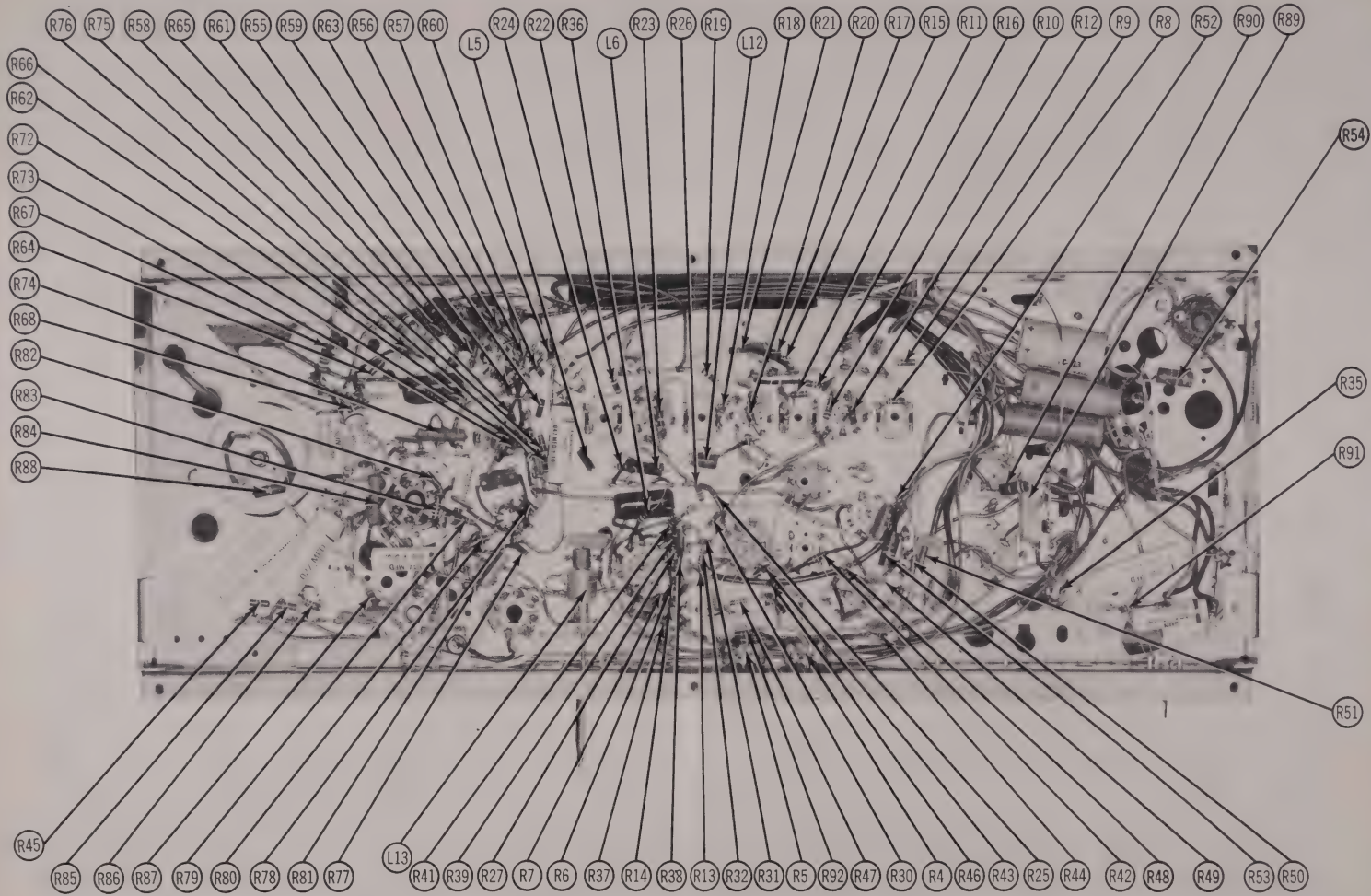
Connect an output meter across speaker voice coil.
Connect the DC probe of the VTVM to point (B). Common to chassis. Tune in a strong air signal and adjust A8 for maximum output. If two peaks occur during this adjustment, use the one resulting in the highest reading on the VTVM.
Reduce the signal strength by disconnecting the antenna. Adjust A9 and A10 for maximum undistorted sound. Further reduce the signal by moving the antenna lead further away. Retouch A9 and A10 for maximum undistorted sound. Repeat entire procedure if necessary.

4.5MC TRAP ALIGNMENT

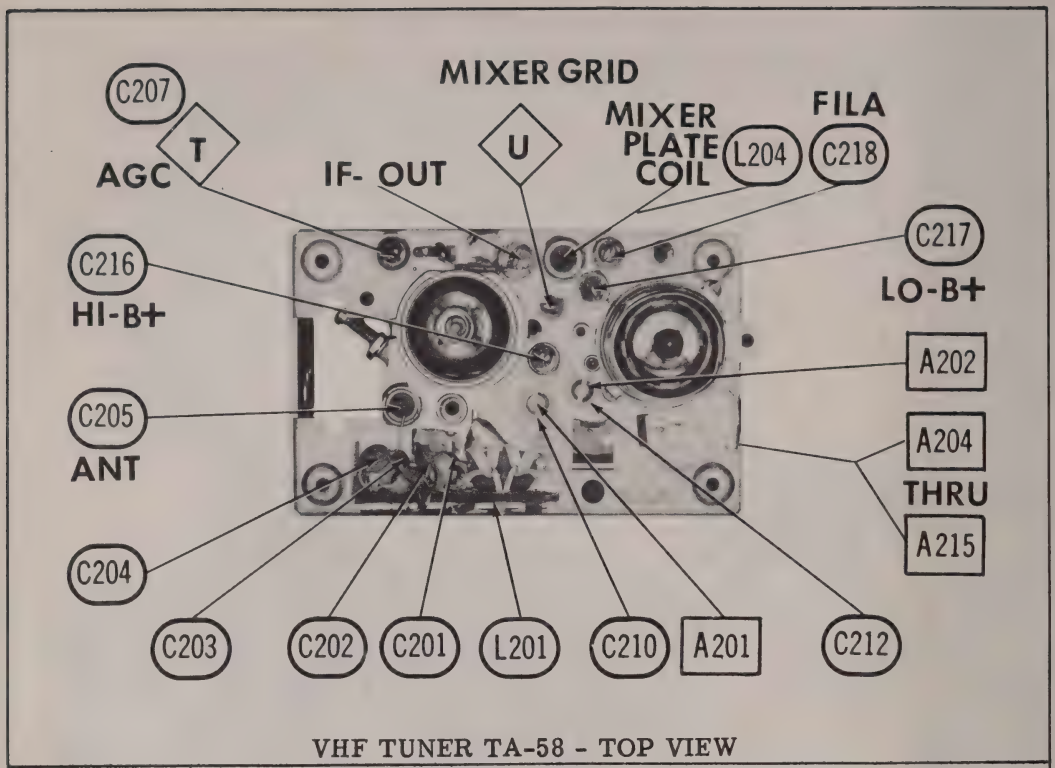
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.05mfd	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to point (C). Common to chassis. (Use 0-10VAC scale).	All	Adjust for MINIMUM deflection.



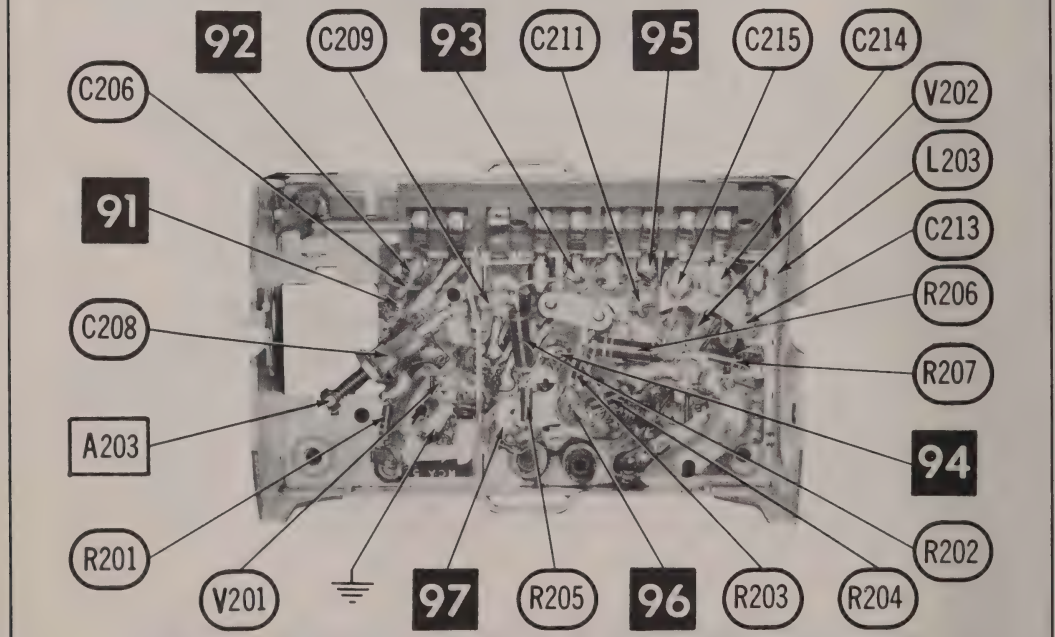
CHASSIS - TOP VIEW



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



VHF TUNER TA-58 - TOP VIEW



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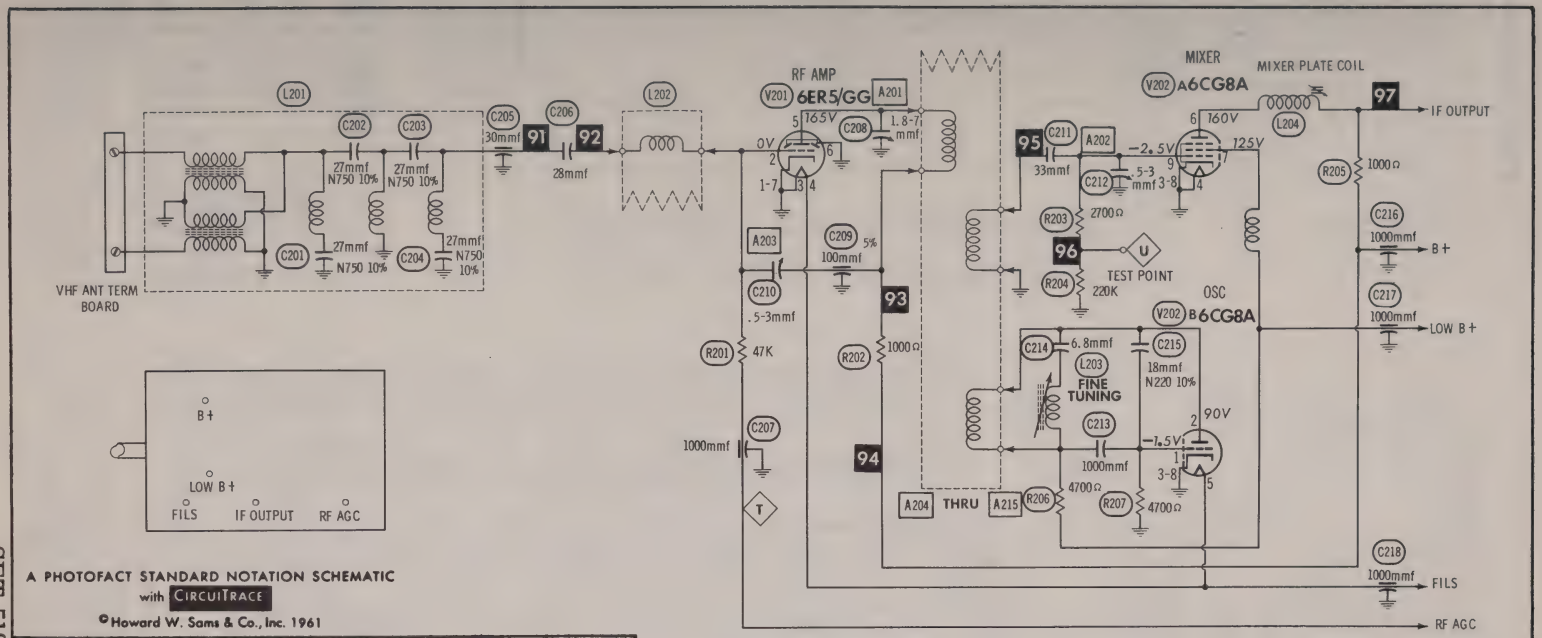
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER TA-58 - BOTTOM VIEW



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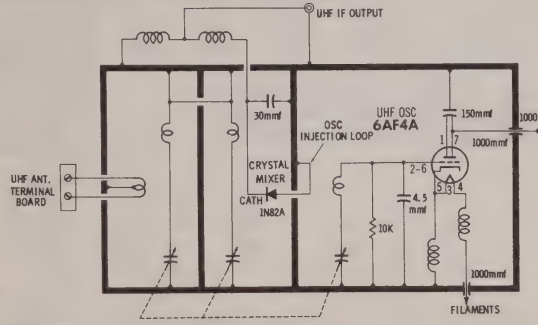
VHF TUNER TA-58



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UHF TUNER TA-52

VHF TUNER TA-58 adaptable to UHF Provisions by using UHF Input Terminal and Plug Assembly #31T-3553-02 and UHF Strip #31T-3773-03.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • TYPE	RAYTHEON • TYPE	SYLVANIA • TYPE
V1	1st Video IF Amp	6BZ6		
V2	2nd Video IF Amp	6BZ6		
V3	3rd Video IF Amp	6CB6A		
V4	Video Output - Sound IF Amp	6AW8A		
V5	AGC Keying - Sync Sep. - Noise Limiter	6BU8		
V6	Audio Detector	6DT6		
V7	Audio Output	6AB5 (6A5A) *		
V8	Sync Phase Inv. - Vert Multi			6CG7
V9	Vert Multi. - Vert Output			6DT5
V10	Horiz. Multi.			6CG7
V11	Horiz. Output			6DQ6A
V12	Damper			6AU4GTA
V13	HV Rectifier			1B3GT
V14	LV Rectifier			5U4GB

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V15	23GP4				23CP4 ①	① Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	●40	350	AH32-64-25	BO483		FP247	TMD-3500	TVL-2780	
B	▲100	350							
C2	40	200	EC-113	PR8S90	BR4025	TC58	TD-40-350	TVA-1511	
C3A	●60	300	EC-129	AF82-60	BO590	FP235 S	TMD-3540	TVL-2507	
B	▲100	50							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	1.0	100V		P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1
C5	82	N750		NT50-C(1.0)0	TCN-81	CU6Q81J	CCT9-101	CW7-310	10TCU-T10
C6	1000		10%	DI-1000	DD-102	SR5DI	CCD-102	GP20	10TS-D10
C7	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C8	1.0	100V		P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1
C9	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C10	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C11	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C12	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C13	3300			DD-3032		BYA10D32	CCD-332	B-332	10TS-D32
C14	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C15	560		5%			SM5T56	CM-15B-561J	MC5J47	MS-356
C16	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C17	5000			BPD-005	DD-502	BYA10D5	CCD-502	B-350	10TS-D50
C18	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C19	5000			BPD-005	DD-502	BYA10D5	CCD-502	B-350	10TS-D50
C20	.22	400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C21	.022	600V		P688N-022	DD-203	CUB6S22	6DP-5-223	GEM-6122	6TM-S22
C22	.047	1000V		P10S8N-047		CUB10S47	10DP-5-473	GEM-10147	10TM-S47
C23	.047	1000V		P10S8N-047		CUB10S47	10DP-5-473	GEM-10147	10TM-S47
C24	.1	600V	10%	P6S2P1-10%		P6S2P1	6DP-4-104	GEM-1001	6TM-P10
C25	1000	3000V		HVD-30-1000	DD30-102	HVB3D1	3CCD-102	3HV-310	3HTC-D10
C26	50			DI-50	DD-500	L2QS50	CCD-500	GP450	10TS-Q50
C27	1000		10%	DI-1000	DD-102	SR5DI	CCD-102	GP20	10TS-D10
C28	820			DI-820	DD-82	BYA10T82	CCD-82	B-382	10TS-T82
C29	4.7		10%	NPO-4R7 4.7	TCZ-4R7	C10Y47C	CCT9-4R7	CW0-547	10TCC-V47
C30	1000		10%	DI-100	DD-101	L2QT1	CCD-101	GP310	10TS-T10
C31	.047	1000V		P10S8N-047		CUB10S47	10DP-5-473	GEM-10147	10TM-S47
C32	4700		Note 1	BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47
C33	1500			BPD-0015	DD-152	BYA10D15	CCD-152	B-315	5HK-D15
C34	.047	200V		P288N-047	DD-503	CUB2S47	4DP-5-473	GEM-4147	5TM-S47
C35	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000	1400V		DAC-37	DD8-103	BYB1S01	16DP-5-103	UAC-110	5L-S10
C38	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	150			DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C41	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47
C42	1000		10%	DI-1000	DD-102	SR5DI	CCD-102	GP20	10TS-D10
C43	1000		10%	DI-1000	DD-102	SR5DI	CCD-102	GP20	10TS-D10
C44	5000			BPD-0022	DD-222	BYA10D22	CCD-222	B-322	5HK-D22
C45	1000	2000V		HVD-30-1000	DD8-102	HVB3D01	3CCD-102	3HV-310	BL-D10
C46	.047	200V		P288N-047	DD-503	CUB2S47	4DP-5-473	GEM-4147	5TM-S47
C47	.1	600V	10%	V6AC8P1-10%		P6S2P1	6DP-4-104	GEM-1001	6TM-P10
C48	.1	600V	10%	V6AC8S4P1-10%		P6S2P1	6DP-4-104	GEM-1001	6TM-P10
C49	.047	600V	10%	V6AC8S47-10%		P6S2S47	6DP-5-473	GEM-6147	6TM-S47
C50	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C51	.01	600V		P688N-01	DE-103	CUB6S1	6DP-5-103	GEM-6110	6TM-S10
C52	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47
C53	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	5TM-D47
C54	3900		10%	1469-0039		IR5D39	CM-30B-392K	MC462.5	MB-339
C55	680		10%	1469-0068		SR5T68	CM-19B-681K	MC2349	MB-368
C56	680		10%	1469-0068		SR5T68	CM-19B-681K	MC2349	MB-368
C57	4700			BPD-0047	DD-472	BYA10D47M	CCD-472	B-347	5HK-D47
C58	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	5TM-S47
C59	.027	1800V	10%			DPM6S6S3	18DP-5-303	GEM-1613	MB-S30
C60	220	2000V	10%	† (330)					
C61	220	2000V	10%	† (330)					
C62	120	2000V	5%	# CC-118			VCM-20-121J		
C63	.047	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

Note 1. May not be used in some versions.
† Alternate Value (Part #CC-119).

Trustone Part Number.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	↓	VC-120	B2L-50	C47S-500K-Z	B13-133 * T)	DP55A	Volume
B	Shaft			Not Req.	K3S-3	Not Req.	Not Req.	
C	Switch			Not Req.	Not Req.	SET *	Not Req.	Push-Pull Off-On

CONTROLS. (cont)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R2A	1000Ω		VC-195A	F1-5		† (■) -1518	● (▲) 4191	Contrast
B	1500Ω			R2-6				Vert. Linearity
R3A	200K	↓	VC-194A	F1-33		† (■) -1120	▲ (■) 4121	Vert. Hold
B	2.5meg			R2-76				Height
R4A	100K		VC-84	TT-40	B47-100K-S	B11-128	PTA15L	Brightness
B	Shaft			Not Req.	Not Req.	T344	Not Req.	
R5A	100K	↓	VC-34	TT-40	B47-100K-S	B11-128	PTA15L	AGC
B	Shaft			Not Req.	Not Req.	T344	Not Req.	

† "CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B17-108, P17-038 (Panel) B11-109, R15-005 (Rear)

● "CONCENTRIKET" Equivalent: K-15 Kit with Base Elements and Shafts: B11-129, P17-038 (Panel) (Not available as a factory assembled unit). B11-230, R15-005 (Rear)

■ "ITA-LOC" Equivalent: FA15R, RU151L, C5875A, 1K525.

▲ "ITA-LOC" Equivalent: FA2R1, RU251L, C5875A, 1K47.

* Factory Assembled Part #PPQ13-133 (6K7)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R6	10meg			
R7	2meg			
R8	4700Ω			
R9	1000Ω			
R10	39K			
R11	3300Ω			
R12	47Ω			
R13	150K			
R14	2.2meg			
R15	220K			
R16	470Ω			
R17	22K			
R18	4700Ω			
R19	470Ω			
R20	68Ω			
R21	220K			
R22	470Ω			
R23	150Ω			
R24	6800Ω			
R25	100Ω			
R26	47K			
R27	390K			
R28	7500Ω 4W	PW5-7500Ω	4G-7500Ω	#R387
R29	39K			
R30	1200Ω			
R31	47Ω			
R32	180Ω			
R33	18Ω			
R34	82K			
R35	120K			
R36	18K			
R37	6800Ω 1W			
R38	39K			
R39	4.7meg			
R40	270K			
R41	56K			
R42	100K			
R43	100K			
R44	560K			
R45	220K ①			
R46	100K			
R47	560K			
R48	6800Ω			
R49	680Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R50	1meg			
R51	1meg			
R52	150Ω			
R53	220Ω 2W			
R54	15K 2W			
R55	2.2meg			
R56	4.7meg			
R57	6800Ω			
R58	33K			
R59	2200Ω			
R60	5600Ω			
R61	330K			
R62	330K			
R63	56K			
R64	2.2meg			
R65	220K			
R66	100Ω			
R67	39K 1W			
R68	56K			
R69	220Ω			
R70	220Ω			
R71	3.8Ω (Cold)			#UR284
R72	100K			
R73	100K			
R74	22K 5W	PW5-22000Ω	3G-22000Ω	#UR376
R75	4.7meg			
R76	470K			
R77	750Ω			
R78	1500Ω			
R79	56K			
R80	100K			
R81	15K			
R82	100Ω			
R83	470K			
R84	12K 4W	PW5-12000Ω	4G-12000Ω	#UR275
R85	150K			
R86	470K			
R87	4700Ω			
R88	1.2Ω			
R89	2700Ω 5W	PW5-2700Ω	5W 2700Ω	#WR-27
R90	390Ω 1W			
R91	270K			
R92	56K			

① May not be used in some versions.

Trustone Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA
K1	Vert. Integrator	4700mmf, 10000mmf, 15K, 15K	CC-120	Centralab PC-392

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	1st Video IF	L-150					
L2A	2nd Video IF	L-151					
B	4) 25MC Trap						
L2A	3rd Video IF	L-155	TV-128	6233	RTC-8561	T320	
B	47, 25MC Trap						
L4	4th Video IF	L-152 ①					① Includes Complete Assy.
L5	RF Choke	L-160	BC-596	4612	RTC-8522	T660	
L6	RF Choke	L-158	TV-192	4515	RTC-8525	T663	
L7A	4.5MC Trap	L-154		1462 IFT	RTC-9058	T253	
B	1st Sound IF						
L8	Peaking	L-162 ②					② Wound on 4700Ω Resistor
L9	Peaking	L-163 ③					③ Wound on 10K Resistor
L10	2nd Sound IF	L-167					
L11	Quadrature	L-110A	TV-154	1451	RTC-8606	T345	
L12	Fil. Choke (1.5ah)	L-164	BC-582	4604	RTC-8516	T356	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.
L13	Horiz. Stabilizer	L-158	TV-163	6310	RC110	RTC-8622	SS-5	WLC-25	T103

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE (0 CURRENT 1000 ^)	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L24	240A	60Ω	1 Hy	FC-18	C-2996	C-2343	25C44	C-24X	

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	PRI. SEC. 1: 117V @ 1.65A; 360V CT @ 240A DC; SEC. 2: 5V @ 3A	TR-52A	P-2882	P-8355		R-75BA	
	SEC. 3: 6.3V @ 2A	SEC. 4	SEC. 5				

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	TR-50A					A-140X	
T3	Yoke (Horiz. 20MH) 110° (Vert. 14.2MH)	L-174		PCM-2017 ① ② ③	DY-27A ① ③		Y-52 ③	26H54 A-140X Y-60-1 ①
	Yoke Clamp	ST-56						
T4	Horiz. Output	TR-51	RVO-152 *	RFR-172 *	HO-304 *	FLY-137 *	D-15R *	

① Use original yoke plug. Connect same as original.
② Remove yoke damping network; use original.
③ Requires new rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	5 & 4
6	6	4	6	6	6
7	7	2	7	7	7
8	8	1	8	8	8
3	2	7	2	1	2
1	1	8	1	2	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: TRUETONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	4700Ω	3-4Ω	AT-50	A-3026	A-3077	26S48	S-3X	

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: TRUETONE PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	SPK-36	5A07	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: TRUETONE PART No. FUSE	TRUETONE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	N	3/4A 250V S/B	F-13	F-14	333, 750 (N 3/4A 250V S/B)	346010	N 3/4	HN 1/3 to 3/4
M2	1" length of #26 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: TRUETONE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3		SR-15 *	6G1X *			* Dual Selenium Diode, Series Connected

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuner	TA-58	VHF, STANDARD COIL REPALCEMENT #GG-4230-A
	Tuner	TA-53	UHF

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Mask	MP-200	
Knob	K-446	VHF Channel Selector

TRUETONE MODELS 2DC1140A, 2DC1142A

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
Knob	K-269	UHF Channel Selector, UHF Models Only
Knob	K-270	UHF Channel Indicator, UHF Models Only
Knob	K-447	Fine Tuning
Knob	K-435	Volume
Knob	K-436	Contrast, Vertical Hold
Dial	DS-45	VHF Channel Selector
Cabinet	CA-387M	Console, Model 2DC1140
Cabinet	CA-387B	Console, Model 2DC1142
Leg	CH-153M	Cabinet, Model 2DC1140
Leg	CH-153B	Cabinet, Model 2DC1142

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUNER PARTS LIST AND DESCRIPTIONS

TA-58

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6ER5/GG	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30							
C206	28		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7			829-7				
C209	100 5%							
C210	.5-3			829-3		CV-1	CT565	
C211	33		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-533	10TCC-Q33
C212	.5-3			829-3		CV-1	CT565	
C213	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C214	6.8		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C215	18 N220 10%					*		
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R201	47K			
R202	1000Ω			
R203	2700Ω			
R204	220K			

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R205	1000Ω			
R206	4700Ω			
R207	4700Ω			

COILS (RF-IF)

ITEM No.	USE	PART No.	NOTES
L201	Antenna Trans. & Assembly	31T-3728	
L202A	Ant., RF, Mixer Grid, Osc. Coils	31M-2GG4	Channel 2 Strip
B	"	31M-3GG4	Channel 3 Strip
C	"	31M-4GG4	Channel 4 Strip
D	"	31M-5GG4	Channel 5 Strip
E	"	31M-6GG4	Channel 6 Strip
F	"	31M-7GG4	Channel 7 Strip

ITEM No.	USE	PART No.	NOTES
L202G	Ant., RF, Mixer Grid, Osc. Coils	31M-8GG4	Channel 8 Strip
H	"	31M-9GG4	Channel 9 Strip
I	"	31M-10GG4	Channel 10 Strip
J	"	31M-11GG4	Channel 11 Strip
K	"	31M-12GG4	Channel 12 Strip
L	"	31M-13GG4	Channel 13 Strip
L203	Fine Tuning Coil	34A-787-04	Core #31T-3544
L204	Mixer Plate Coil	31U-630-01	

Note: Part numbers listed above are STANDARD COIL Part Numbers.

TUNER ALIGNMENT INSTRUCTIONS

TA-58

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A203 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A204 thru A215 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

RF AND MIXER ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓣ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Turn Contrast fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. to point Ⓣ Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 201. If markers fall below 70% on any channel, make compromise adjustment of A201 and A202 with channel switch set to that channel. Check to see that other channels have not been seriously affected.
			207MC	205.25MC 209.75MC	12			
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
			177MC	175.25MC 179.75MC	7			
			85MC	83.25MC 87.75MC	6			
			79MC	77.25MC 81.75MC	5			
			69MC	67.25MC 71.75MC	4			
			63MC	61.25MC 65.75MC	3			
			57MC	55.25MC 59.75MC	2			

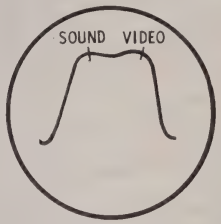


FIG. 201

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K across Video Det. load.	A204	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

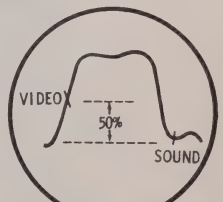
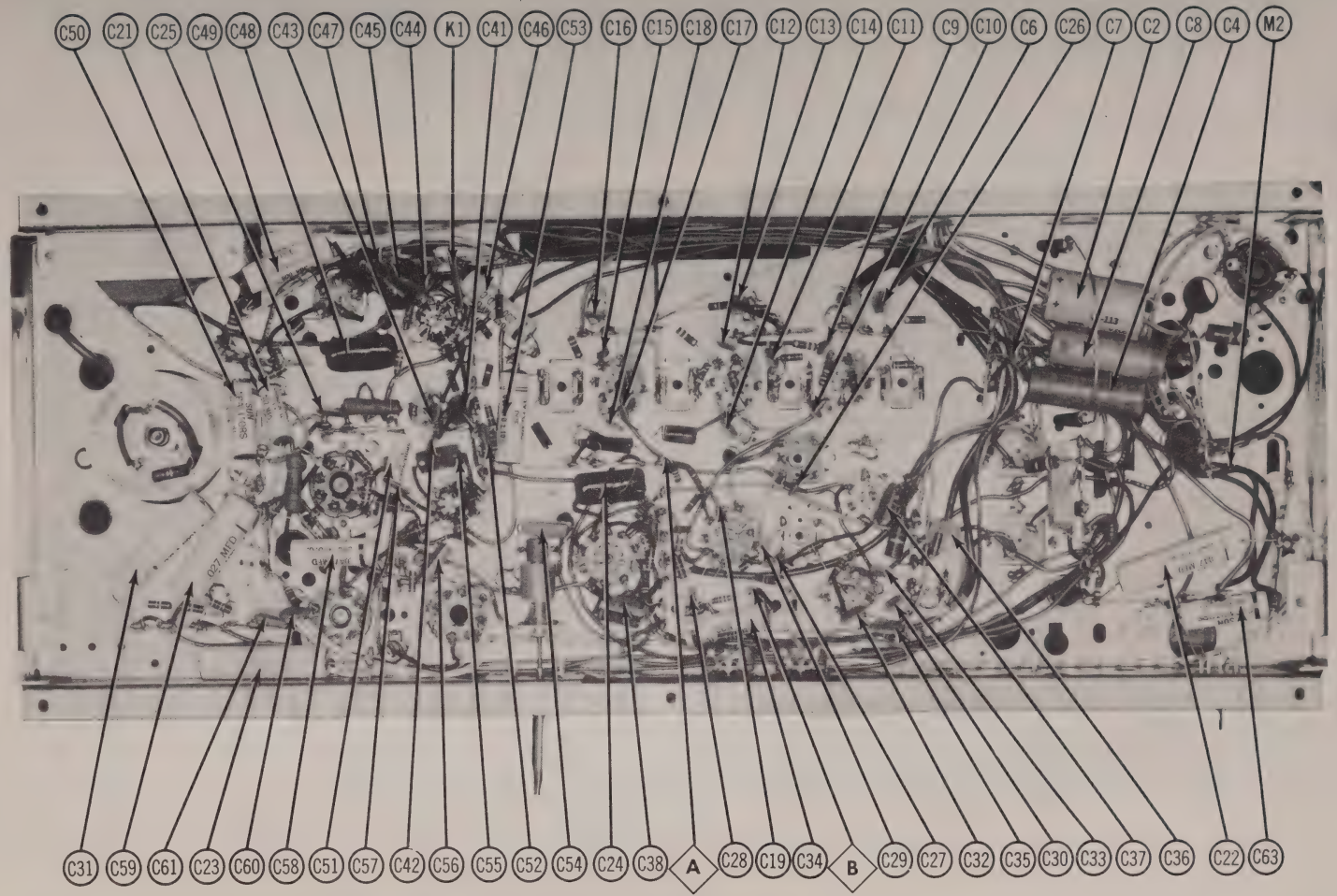


FIG. 202

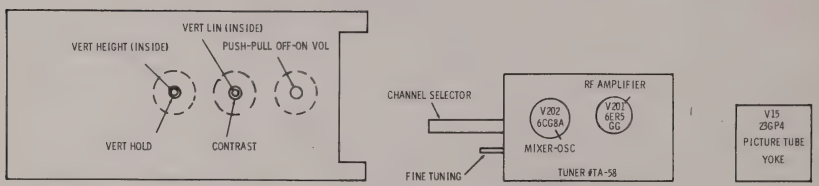


CHASSIS BOTTOM VIEW - CAPACITOR & MISC. IDENT.

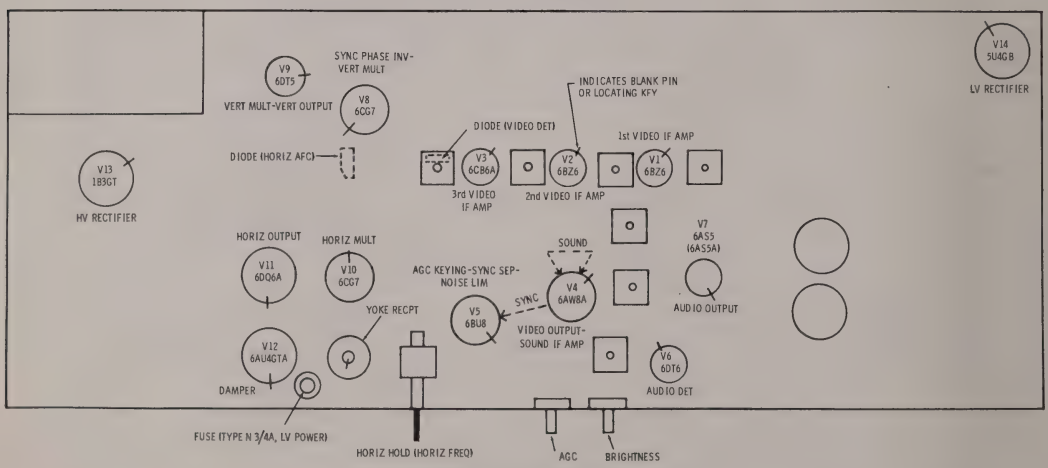
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	150K	47Ω	0Ω	.1Ω	▲540Ω	▲540Ω	0Ω		
V2	6BZ6	110K	120K	.1Ω	0Ω	†530Ω	†530Ω	▲68Ω		
V3	6CB6A	.1Ω	150Ω	.1Ω	0Ω	■470Ω	■470Ω	0Ω		
V4	6AW8A	0Ω	100K	■100K	0Ω	.1Ω	●100Ω	6900Ω	■1200Ω	†7500Ω
V5	6BU8	■0Ω	†8200Ω	2meg	0Ω	.1Ω	●35K	†390K	†40K	■4.7meg
V6	6DT6	18Ω	680Ω	.1Ω	0Ω	‡780K	■8200Ω	560K		
V7	6AS5	¶12K	NC	.1Ω	0Ω	500K	†280Ω	†575Ω		
V8	6CG7	●†1.3meg	220K	●100K	0Ω	.1Ω	†12K	1.8meg	3300Ω	0Ω
V9	6DT5	†160Ω	NC	2.2meg	0Ω	.1Ω	NC	●550Ω	NC	†420Ω
V10	6CG7	†7600Ω	1meg	1500Ω	.1Ω	0Ω	†100K	56K	1500Ω	0Ω
V11	6DQ6A	NC	0Ω	NC	†12K	470K	TP	.1Ω	0Ω	TOP CAP †10Ω
V12	6AU4GTA	NC	NC	¶620K	NC	†60Ω	NC	.1Ω	0Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡440Ω
V14	5U4GB	NC	¶50K	NC	24Ω	NC	26Ω	NC	¶50K	
V15	Z3GP4	0Ω	39K	†120K	0Ω	NC	NC	●100K	.1Ω	
V201	6ER5 GG	0Ω	4meg	0Ω	.1Ω	†3700Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	■4700Ω	0Ω	0Ω	.1Ω	†3700Ω	■0Ω	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM PIN 8 OF V14.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION
■ MEASURED FROM PIN 1 OF V7.
▲ MEASURED FROM PIN 2 OF V2.
TP TIE POINT



BOTTOM VIEW



TUBE PLACEMENT CHART

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast Controls for a normal picture.

Turn the Horizontal Hold (Freq.) clockwise until the picture loses sync.

It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE REMOVAL

1. Remove 12 wood screws holding rear cover.
2. Remove rear cover.
3. Remove 5 push-on type knobs at front of cabinet.
4. Remove 2 screws holding antenna terminal bracket.
5. Remove 2 screws holding antenna terminal board and disconnect speaker leads.
6. Remove 4 screws at top holding picture tube mounting.
7. Remove 4 chassis bolts and remove chassis (with picture tube).

PHOTOFACT® Folder

AIRLINE MODELS GEN-1667A, GEN-1668A, GEN-1685A, GEN-1858A, GEN-1859A

AIRLINE MODELS GEN-1667A, GEN-1668A, GEN-1685A, GEN-1858A, GEN-1859A

MODEL GEN-1668A

AIRLINE MODELS GEN-1667A, GEN-1668A, GEN-1685A, GEN-1858A, GEN-1859A

TRADE NAME	Airline Models GEN-1667A, GEN1685A, GEN-1668A, GEN-1858A, GEN-1859A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver (Models GEN-1800 Series Are Clock Versions)
POWER SUPPLY	105 — 120 Volts AC, 60 Cycles RATING 26 Watts, .25 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4.... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1640KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal.	"	A6	"

SET 519 FOLDER 3

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KG302

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	Converter	12BE6
V2	IF Amplifier	12BA6
V3	Det.-AVC-AF Amp.	12AV6
V4	Output	50C5
V5	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	E3214	PRS2200	BBRD5315	TCD497	TDLD-8	TVA-2450	①
B	30	150							

① Some versions may use Part #E-3233 or #E3233A in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C3	2000	Note 1	BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C4	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C5	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C6	.082 400V 10%	Note 2			DPMS-6S82	6DP-4-823		6PS-S82
C7	.022 400V	Note 3	P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22

Note 1. Not used in clock versions.
Note 2. Clock versions use .1mfd in this application.
Note 3. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K		E-2542	F1-41		† QJ-1505R	■	Volume Note 1
B	500K			R2-40				Tone Note 1
C	Switch			KR-1				Power Off-On Note 1

Note 1. Clock versions use R1 volume control only (Part #E2554A).
† "CONCENTRIKIT" equivalent: K-15 Kit with base elements and shafts: B13-133, P17-031 (Panel)
(Not available as a factory assembled unit). B11-133, R1-111 (Rear)
76-1 (Switch)

■ "STA-LOC" equivalent: FB55A, RU55L, OF1000, IS1437, US41.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	22K	
R3	100Ω	(150Ω) *

ITEM No.	RATING	REMARKS
R4	3.3meg	
R5	150Ω	

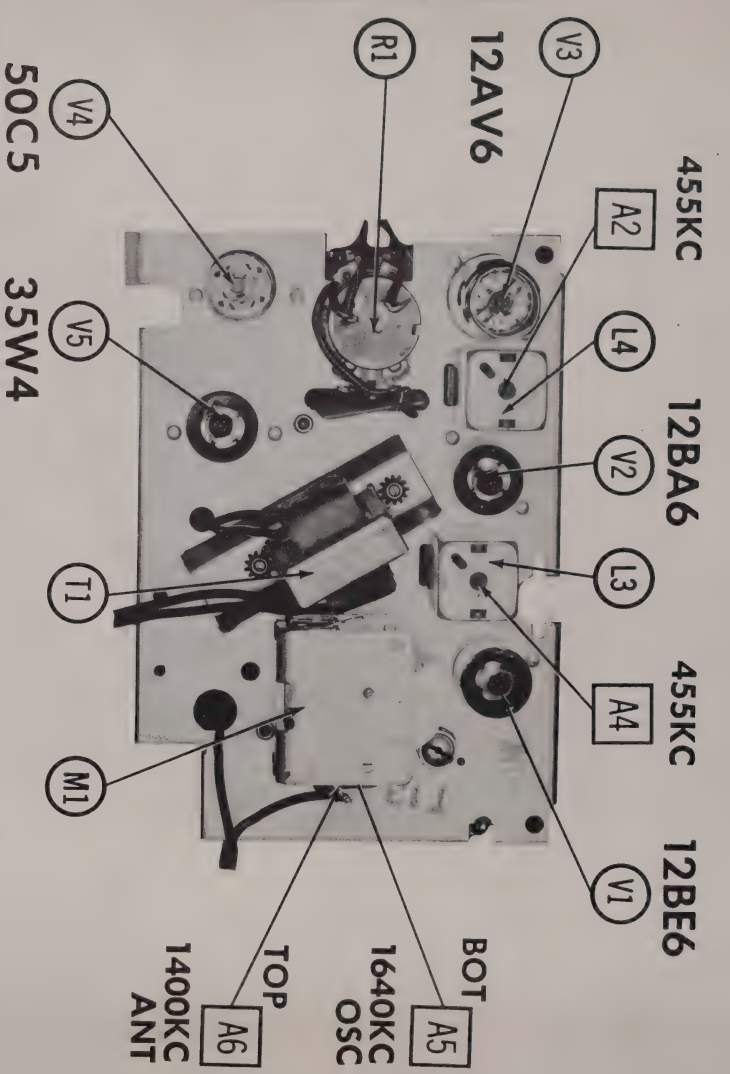
ITEM No.	RATING	REMARKS
R6	1500Ω 1W	

* Alternate Value.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K1	Audio Coupling	220mmf, 220mmf, 2000mmf, 5000mmf, 470K, 470K, 6.8meg	E3015	Aerovox	PA-113-1
				Centralab	PC-150
				Cornell-Dubilier	116TM1
				Mallory	MS-106
				Sprague	DT-1

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loop Ant.	E6031 ①				① Clock versions use Part #E6039.
L2	Osc. Coil	E6139 ②	BC-393	69-OSC	RTC-8646	② Clock versions use Part #E6139A.
L3	Input IF Trans.	E6256-1	BC-352	12-C1	RTC-8632	
L4	Output IF Trans.	E6256-2	BC-353	12-C2	RTC-8633	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3000Ω	3-4Ω	E1127B-1 ①	A-3025 ②	A-3332 ②	26S58	S-12Z	① AlternatePart #E1127, E1127B ② Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"x 6"	PM	3-4Ω	E1048 ①	46A07	① Part #E1060B used in Clock versions.

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1	Tuning Cap	E3527	2 Gang (Ant. 30-398mmf, Osc. 11-135mmf)
	Tuning Cap	E3527B	2 Gang (Clock Versions only)
	Clock	E1321	Timer (Telechron J-3)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

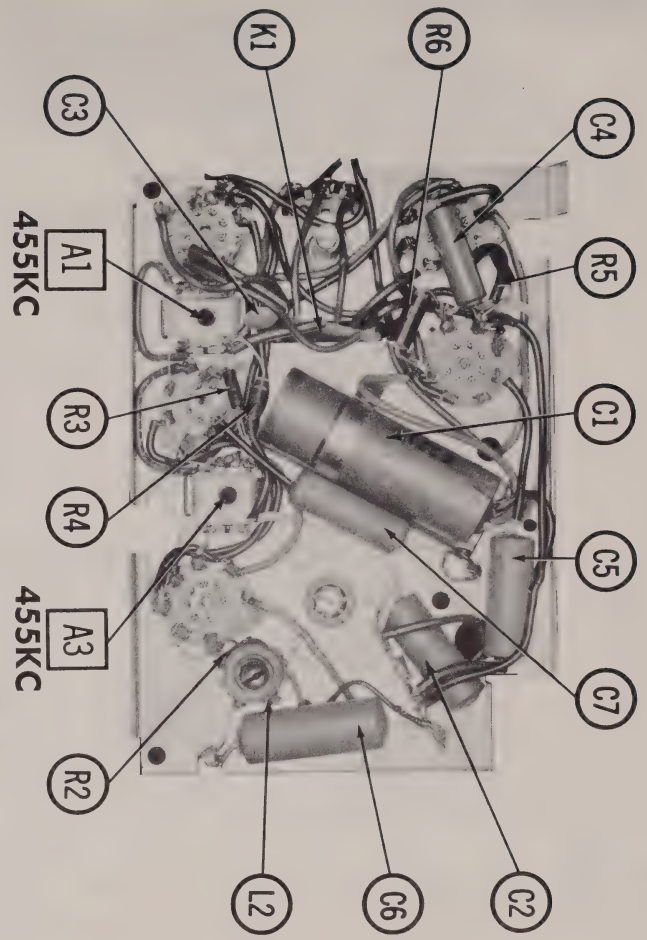
NAME	PART NO.	DESCRIPTION
Knob	E5096	Tuning, Models GEN-1600 Series
Knob	E5096C	Tuning, Models GEN-1800 Series
Knob	E5099	Volume, Models GEN-1600 Series
Knob	E50149A	Volume, Models GEN-1800 Series
Knob	E50105	Tone, Model GEN-1600 Series
Knob	E5065	Clock
Cabinet	E7062	Shell, Coral, Model GEN-1667A
Cabinet	E7063	Shell, Maroon, Model GEN-1668A
Cabinet	E7077	Face, White, Models GEN-1667A, GEN-1668A
Cabinet	E70116	Shell, Turquoise, Model GEN-1685A
Cabinet	E70121	Face, White, Model GEN-1685A
Cabinet	E70115D	Shell, Coral, Model GEN-1858A
Cabinet	E70117D	Shell, Turquoise, Model GEN-1859A
Cabinet	E70114	Face, Eggshell, Model GEN-1858A
Cabinet	E70122	Face, White, Model GEN-1859A
Window	E50146C	Clock

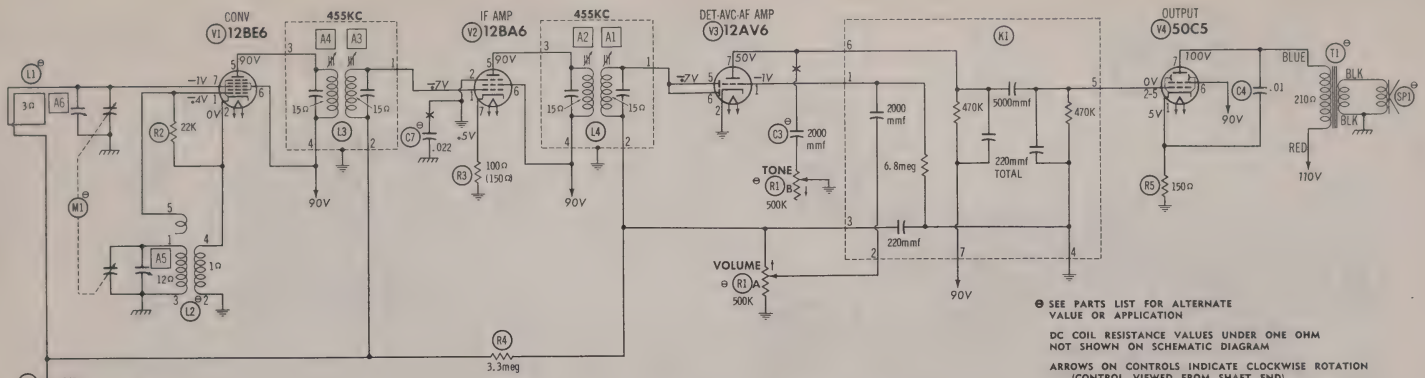
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS—BOTTOM VIEW

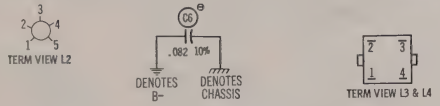




⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

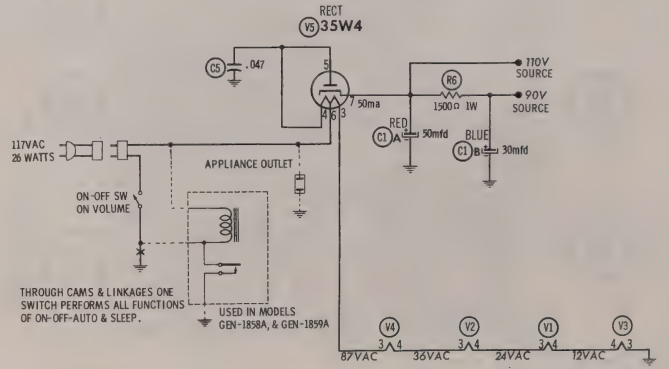


NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	30Ω	15Ω	†1500Ω	†1500Ω	3.8meg
V2	12BA6	3.8meg	0Ω	45Ω	30Ω	†1500Ω	†1500Ω	100Ω
V3	12AV6	6.8meg	0Ω	0Ω	15Ω	500K	500K	†470K
V4	50C5	150Ω	470K	115Ω	45Ω	NC	†1500Ω	†210Ω
V5	35W4	TP	TP	115Ω	155Ω	155Ω	150Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE MODELS GEN-1667A, GEN-1668A, GEN-1685A, GEN-1858A, GEN-1859A

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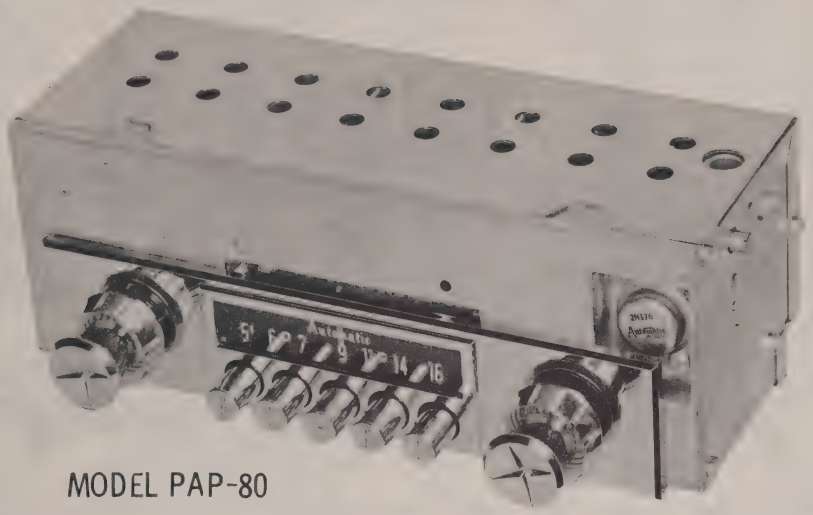
AUTOMATIC MODELS PAP-80, PP-330, VPA-280, VTP-440

AUTOMATIC MODELS PAP-80, PP-330, VPA-280, VTP-440



MODEL PAP-80

AUTOMATIC MODELS PAP-80, PP-330, VPA-280, VTP-440

TRADE NAME	Automatic Models PAP-80, PP-330(For 1960 Plymouths); VPA-280, VTP-440 (For 1960 Valiants)
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated 3 Tube - 2 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 1.4 Amp. @12.6 Volts DC
TUNING RANGE—BROADCAST	538 — 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 Thru A4... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #8721, 8722
WALSCO #2519

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	265KC (400~ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru dummy (Fig. 1) to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
3.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A7 for maximum output.					

PUSHBUTTON ADJUSTMENT

1. Pull Pushbutton out.
2. Tune manually to desired station.
3. Press Pushbutton in firmly.
4. Repeat for remaining Pushbuttons.

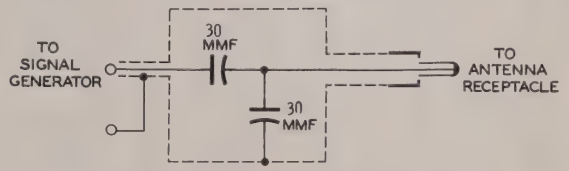


FIG.1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KD315

SET 519 FOLDER 4

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BL6	V3	IF Amp.-Det.-AVC-AF Amp.	12FR8
V2	Converter	12AD6			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	6D122R	Driver		2N362		PNP
X2	2N176 *	Output			2N176	PNP Note 1

* Some versions may use types 8L201C, SYL1127 or equivalent.

Note 1. When replacing, apply silicone grease between transistor and chassis. Tighten mounting screws securely.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	AUTOMATIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	15	20-322	AFH3-00-95		WP300.85		TVLS-3026.8*	
B	▲400	15							
C	100	15							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2		#28-800L						
C3	40		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C4		#28-400-4						
C5	5		DI-5	DD-050	L10V5	CCD-050	GP550	10TS-V50
C6	40		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C7		#28-431						
C8	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-100	CN7-310	10TCU-T10
C9	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C10	100 N750		N750-DI 100	DTN-100	C10T1U	CCTN-100	CN7-310	10TCU-T10
C11	50000		BPD-05	DD-503			GP150	5HK-S50
C12	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5HK-D20
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	GP110	5HK-S10
C16	5000	Note 1	BPD-005	DD-502	BYA10D5	CCD-502	GP250	5HK-D50
C17	3000		BPD-003	DD-302	BYA10D3	CCD-302	GP230	5GA-D30

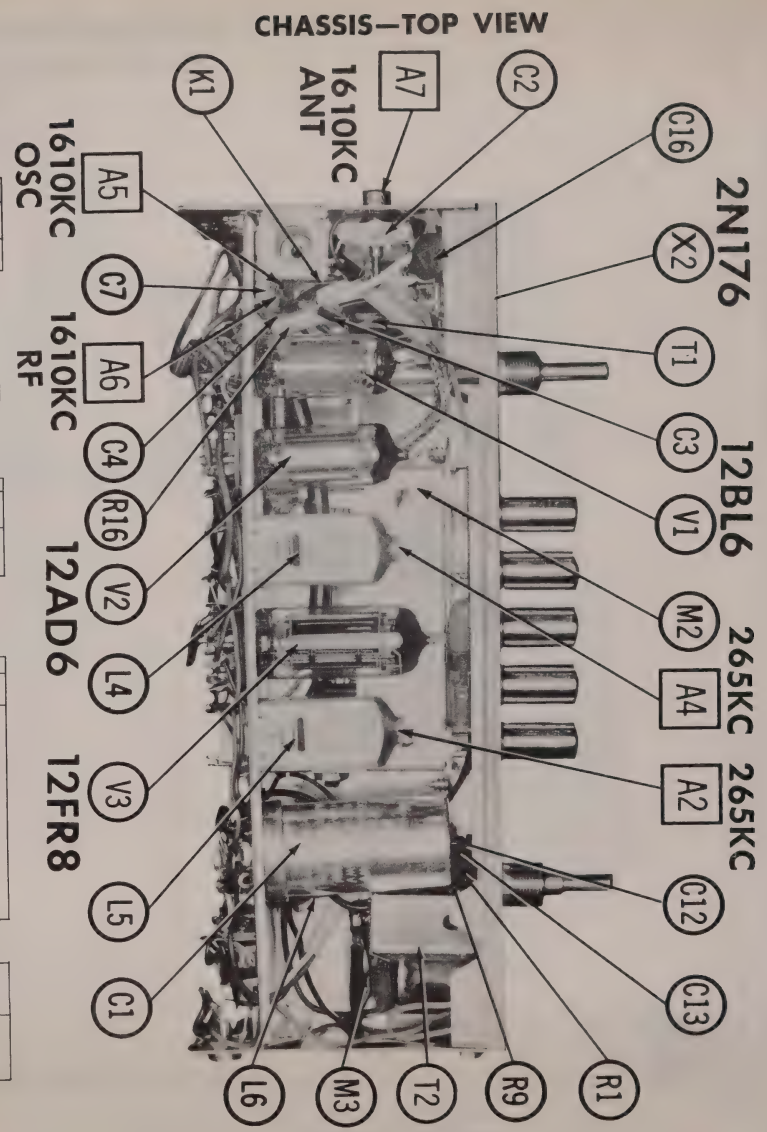
Automatic Part Number.

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AUTOMATIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg		80A1540					Tone
B	1meg							Volume
	200K Tap							
C	Switch							Switch

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	220K	
R3	4.7meg	
R4	2.2meg	
R5	47K	
R6	10meg	
R7	10meg	

ITEM No.	RATING	REMARKS
R8	1.2meg	
R9	220K	
R10	2.2meg	(10meg) *
R11	1500Ω	(2200Ω) *
R12	220Ω	
R13	470K	Note 1

ITEM No.	RATING	REMARKS
R14	10Ω 1W	
R15	150Ω 1W	
R16	1Ω 1W	
R17	150Ω	

* Alternate Value.
Note 1. Not used in all models.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AUTOMATIC PART No.	REPLACEMENT DATA
K1	Antenna Filter	100mmf, 1.2meg	89-4204	Sprague PRC-9

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		AUTOMATIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Coil	①				
L2	RF Coil	①				
L3	Osc. Coil	①				
L4	Input IF Trans.	14-272	BC-350	12-H1	RTC-8638	
L5	Output IF Trans.	14-273	BC-424		RTC-8640	

① Part of Tuner Assembly M2.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	AUTOMATIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L6		.6Ω	.009 HY	75A6001					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AUTOMATIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	7	1	75A1538 ①					① Manual Tuners use Part #75A1436.

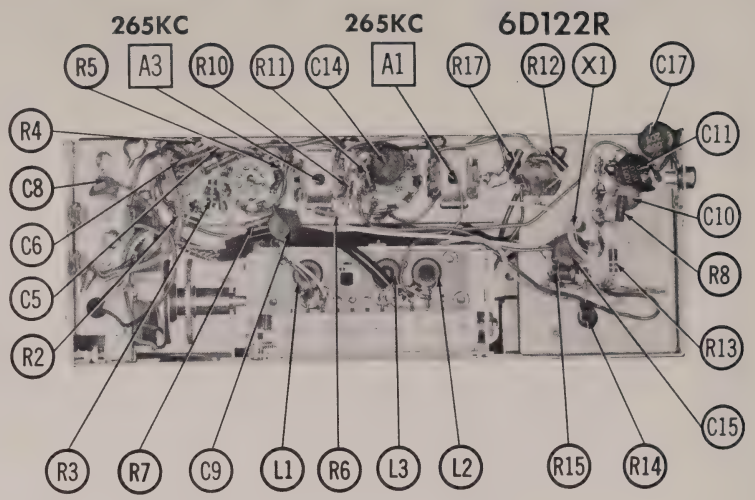
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	AUTOMATIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	12Ω Tap @ 3-4Ω	75A1539 ①					① Manual Tuners Use Part #75A1437.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AUTOMATIC PART No.	QUAM PART No.	
SP1	4"x 8"	PM	3-4Ω	73B1170M *	48A2	* Used in Model VPA-280
	6"x 9"	PM	3-4Ω	73A1545 ♦		♦ May be used in some versions of VPA-280
	6"x 9"	PM	3-4Ω	73-908 ‡		‡ Used in Model PAP-80, PP-330
	6"x 9"	PM	3-4Ω	73-905 †		† May be used in some versions of PAP-80, PP-330

CHASSIS—END VIEW



FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AUTOMATIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	7/4A 32V			30707.5 (SFE 7/4A 32V)	155009	SFE 7/2	HDH

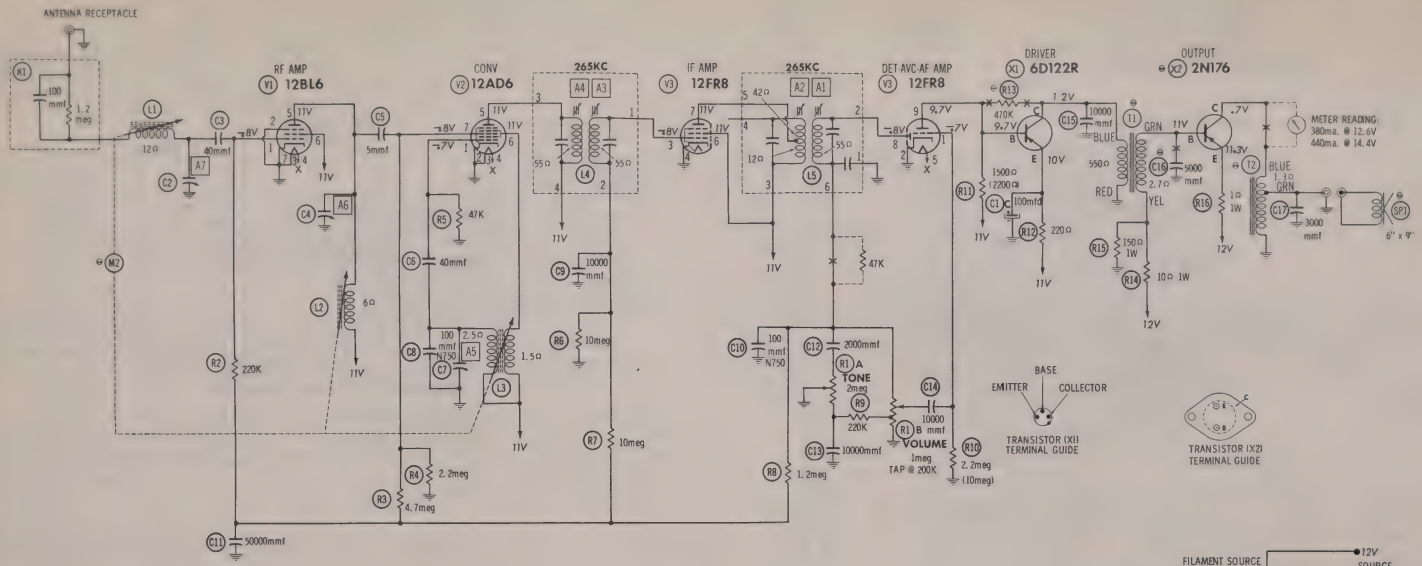
MISCELLANEOUS

ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
M2	Tuner	78B1532	Pushbutton Type
	Tuner	78A1641	Manual Type
M3	Spark Plate		

CABINETS & CABINET PARTS

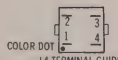
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

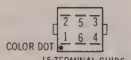
NAME	PART NO.	DESCRIPTION
Knob	48A141l	Tuning, Volume, Models PAP-80, PP-330
Knob	47-52	Tuning, Volume, Models VPA-280, VTP-440
Knob	48A1038	Tone, Models PAP-80, PP-330
Knob	48A393	Tone, Models VPA-280, VTP-440
Knob	48A1038-1	Dummy, Models PAP-80, PP-330
Knob	48A393-1	Dummy, Models VPA-280, VTP-440

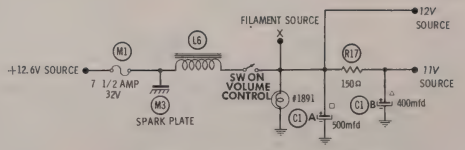


❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM







RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	2meg	0Ω	2Ω	0Ω	155Ω	150Ω	0Ω		
V2	12AD6	47K	0Ω	0Ω	2Ω	205Ω	150Ω	1.8meg		
V3	12FR8	2.2meg	0Ω	6.3meg	2Ω	0Ω	150Ω	180Ω	1meg	1300Ω

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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AUTOMATIC MODELS PAP-80, PP-330, VPA-280, VTP-440

PHOTOFACT® Folder with CIRCUITRACE*

GENERAL ELECTRIC MODELS RC1240A, RC1241A, RC1242A, RC1250A, RC1251A, RC1252A (Ch. TU10)

GENERAL ELECTRIC MODELS RC1240A, RC1241A, RC1242A, RC1250A, RC1251A, RC1252A (Ch. TU10)

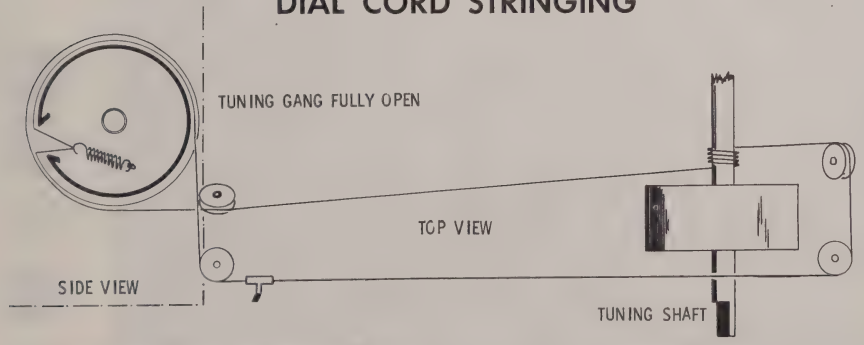
MODEL RC1252A

GENERAL ELECTRIC MODELS RC1240A, RC1241A, RC1242A, RC1250A, RC1251A, RC1252A (Ch. TU10)

TRADE NAME	General Electric Models RC1240A, RC1241A, RC1242A (Amp. Only) RC1250A, RC1251A, RC1252A (Tuner Ch. TU10 & Amp.)		
MANUFACTURER	General Electric Co., Product Service, Radio Receiver Dept, 869 Broad Street, Utica, N. Y.		
TYPE SET	AC Operated 9 Tube FM-AM Tuner, 5 Tube Stereo Amplifier, And 4 Speed Automatic Record Changer		
POWER SUPPLY	105 - 120 Volts AC, 60 Cycles	RATING	Tuner: .56 Amp. @ 117 Volts AC Amp.: .94 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER CH17 OR CH18 — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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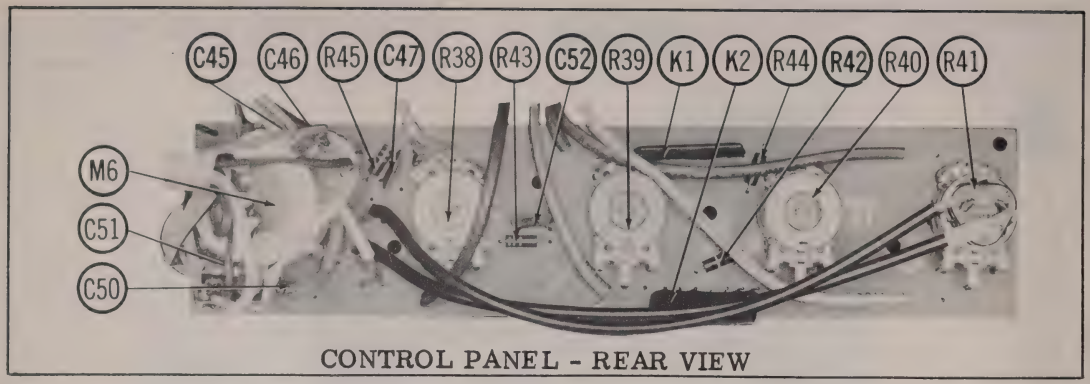
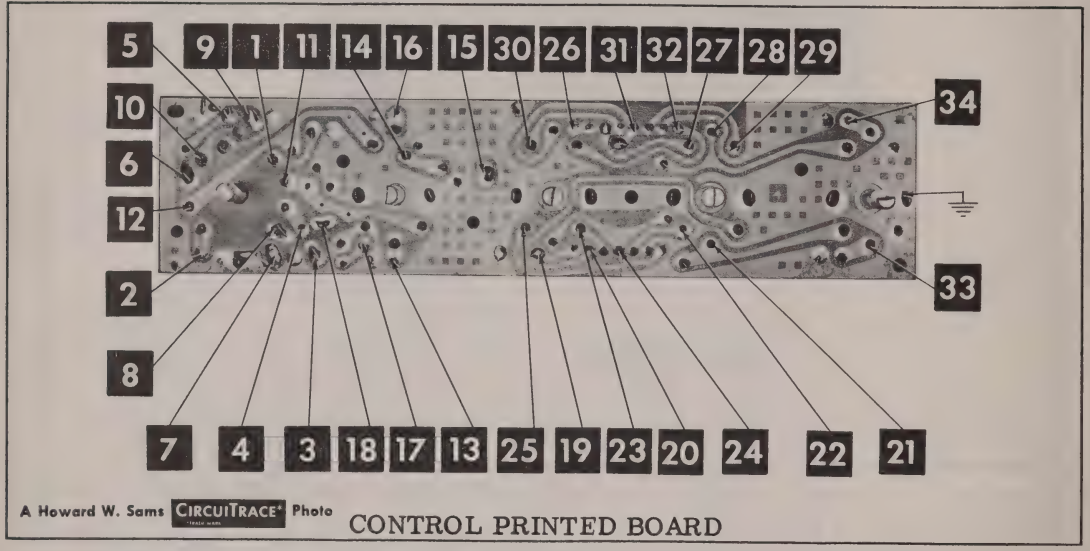


CONTROL PANEL - REAR VIEW



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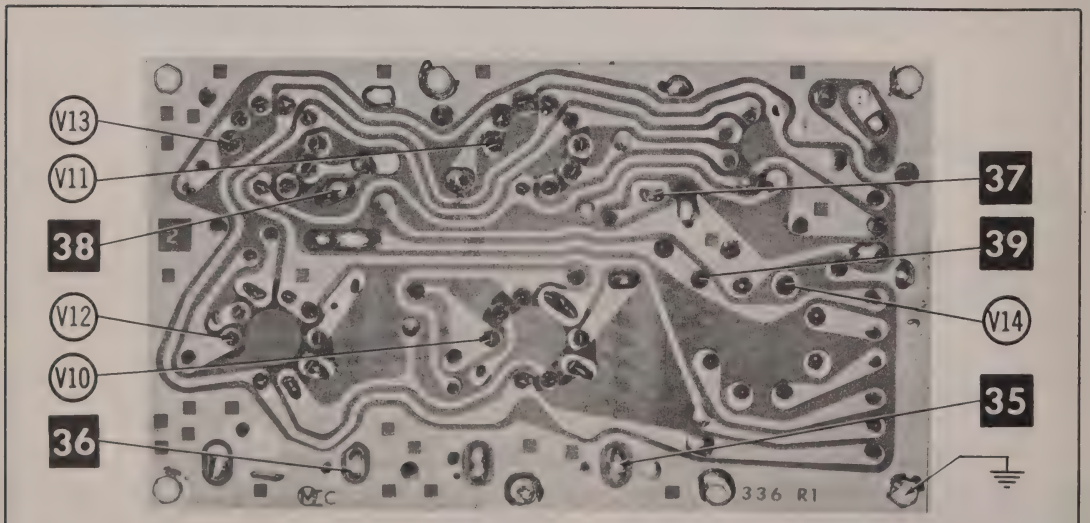
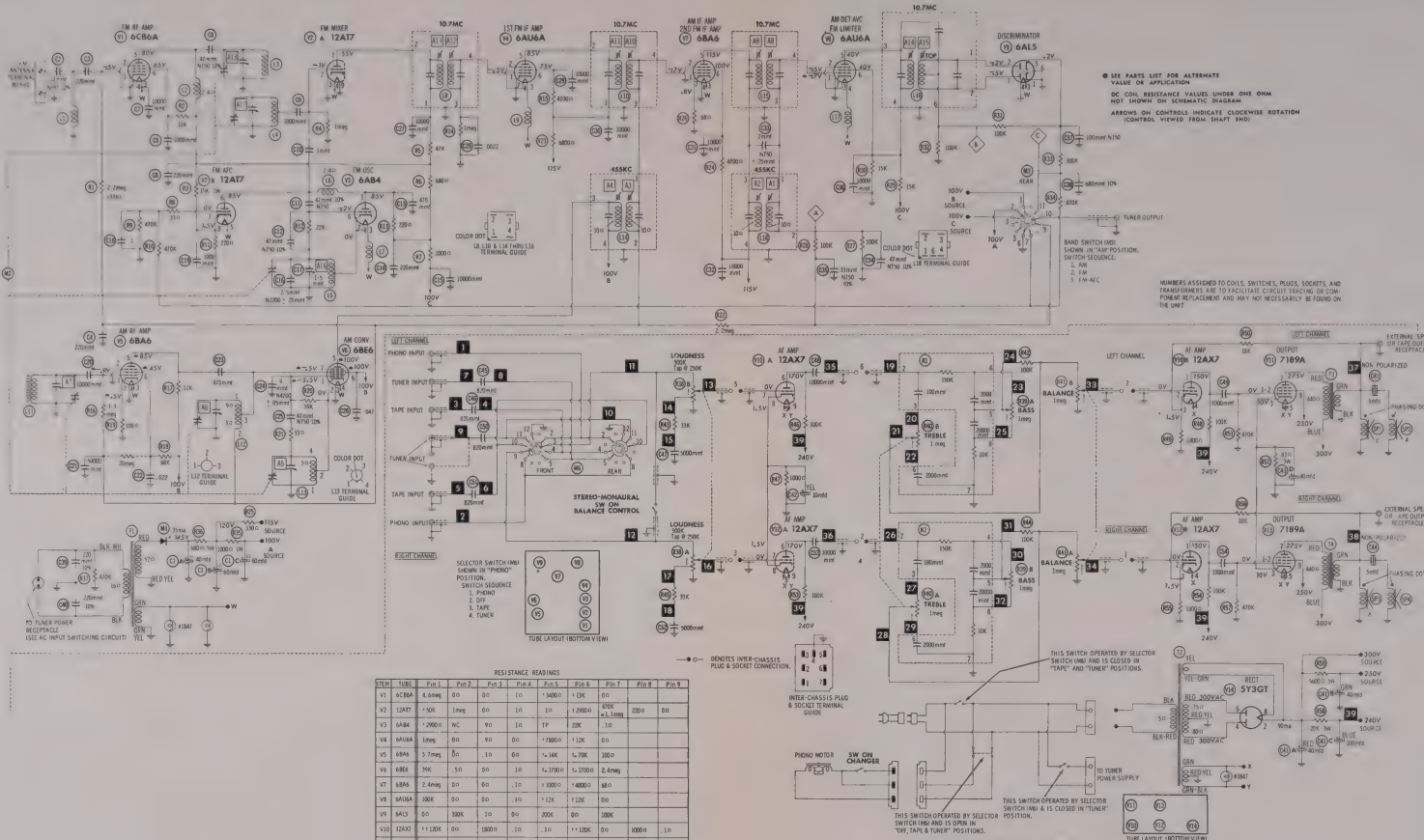
CONTROL PRINTED BOARD



A Howard W. Sams CIRCUITRACE® Photo

AMP PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED


FM RF AMP V1 6CB6A
FM MIXER V7 A 12AT7
10.7MC
1ST FM IF AMP V4 6AU6A
AM IF AMP 2ND FM IF AMP V7 6BA6
AM DET AVC FM LIMITER V8 6AU6A
DISCRIMINATOR V9 6AL5
FM AFC V7 B 12AT7
FM OSC V5 6AB4
455KC
COLOR DOT
L8 L10 & L14 THRU L16 TERMINAL GUIDE
L17 TERMINAL GUIDE
TUNER OUTPUT
BAND SWITCH (MB) SHOWN IN "AM" POSITION. SWITCH SEQUENCE: 1. AM 2. FM 3. FM-AFC
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
AM RF AMP V5 6BA6
AM CONV V6 6BE6
LEFT CHANNEL
PHONO INPUT
TUNER INPUT
TAPE INPUT
TUNER INPUT
TAPE INPUT
PHONO INPUT
RIGHT CHANNEL
STEREO-MONAURAL SW ON BALANCE CONTROL
FRONT
REAR
LOUDNESS 350K Tap @ 250K
LOUDNESS 300K Tap @ 250K
AF AMP V10 A 12AX7
AF AMP V10 B 12AX7
BALANCE 1meg
BASS 1meg
TREBLE 1 meg
OUTPUT V11 7189A
EXTERNAL SPEAKER OR TAPE OUTPUT RECEPTACLE
NON-POLARIZED
PHASING DOT
SELECTOR SWITCH (MA) SHOWN IN "PHONO" POSITION. SWITCH SEQUENCE 1. PHONO 2. OFF 3. TAPE 4. TUNER
TUBE LAYOUT (BOTTOM VIEW)
DENOTES INTER-CHASSIS PLUG & SOCKET CONNECTION.
INTER-CHASSIS PLUG & SOCKET TERMINAL GUIDE
L13 TERMINAL GUIDE
TUNER POWER RECEPTACLE (SEE AC INPUT SWITCHING CIRCUIT)
THIS SWITCH OPERATED BY SELECTOR SWITCH (MB) AND IS CLOSED IN "TAPE" AND "TUNER" POSITIONS.
PHONO MOTOR
SW ON CHANGER
TO TUNER POWER SUPPLY
THIS SWITCH OPERATED BY SELECTOR SWITCH (MB) AND IS OPEN IN "OFF, TAPE & TUNER" POSITIONS.
THIS SWITCH OPERATED BY SELECTOR SWITCH (MB) AND IS CLOSED IN "TUNER" POSITION.
RECT V14 5Y3GT
TUBE LAYOUT (BOTTOM VIEW)

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	4.6meg	0Ω	0Ω	1Ω	*3600Ω	*13K	0Ω		
V2	12AT7	*50K	1meg	0Ω	1Ω	1Ω	†2900Ω	470K ±1.1meg	220Ω	0Ω
V3	6AB4	*2900Ω	NC	90Ω	1Ω	TP	22K	1Ω		
V4	6AU6A	1meg	0Ω	90Ω	0Ω	*780Ω	†12K	0Ω		
V5	6BA6	5.7meg	0Ω	1Ω	0Ω	‡.34K	‡.70K	100Ω		
V6	6BE6	3MK	50Ω	0Ω	1Ω	‡.3700Ω	‡.3700Ω	2.4meg		
V7	6BA6	2.4meg	0Ω	0Ω	1Ω	†3300Ω	*4800Ω	68Ω		
V8	6AU6A	200K	0Ω	0Ω	1Ω	*12K	†12K	0Ω		
V9	6AL5	0Ω	330K	1Ω	0Ω	200K	0Ω	100K		
V10	12AX7	††120K	0Ω	1800Ω	1Ω	1Ω	††120K	0Ω	1000Ω	1Ω
V11	7189A	470K	470K	820Ω	1Ω	1Ω	NC	††440Ω	NC	††560Ω
V12	12AX7	††120K	0Ω	1800Ω	1Ω	1Ω	††120K	0Ω	1000Ω	1Ω
V13	7189A	470K	470K	820Ω	1Ω	1Ω	NC	††440Ω	NC	††560Ω
V14	5Y3GT	NC	¶	NC	80Ω	NC	75Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
* MEASURED IN "AM" POSITION.
■ MEASURED IN "AFC" POSITION.
† MEASURED FROM OUTPUT OF ML
†† MEASURED FROM PIN 2 OF V14.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
from Howard W. Sams
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GENERAL ELECTRIC MODELS RC1240A, RC1241A, RC1242A, RC1250A, RC1251A, RC1252A (Ch. TU10)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
A1 thru A4..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A6, A7, A16, A17, A18. GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A8 thru A15..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe across output jack.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1620KC	Tuning gang fully open.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC Signal	"	A6, A7	Adjust for maximum output. Repeat Steps 1, 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interfernece.	DC probe to point (A). Common to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	DC probe thru 1meg to point (B). Common to chassis.	A14	"
6.	"	"	"	DC probe to point (C). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
5.	"	"	"	Vert. amp. thru 47K to point (B). Low side to chassis.	A14	"
6.	"	"	"	Vert. amp. to point (C). Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals with 270Ω in high side.	108MC (Unmod.)	(FM) 108MC	DC probe to point (A). Common to chassis.	A16	Adjust for maximum output.
8.	"	105MC	105MC	"	A17, A18	"

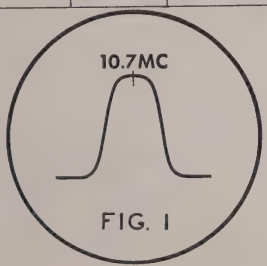


FIG. 1

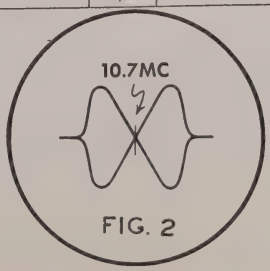
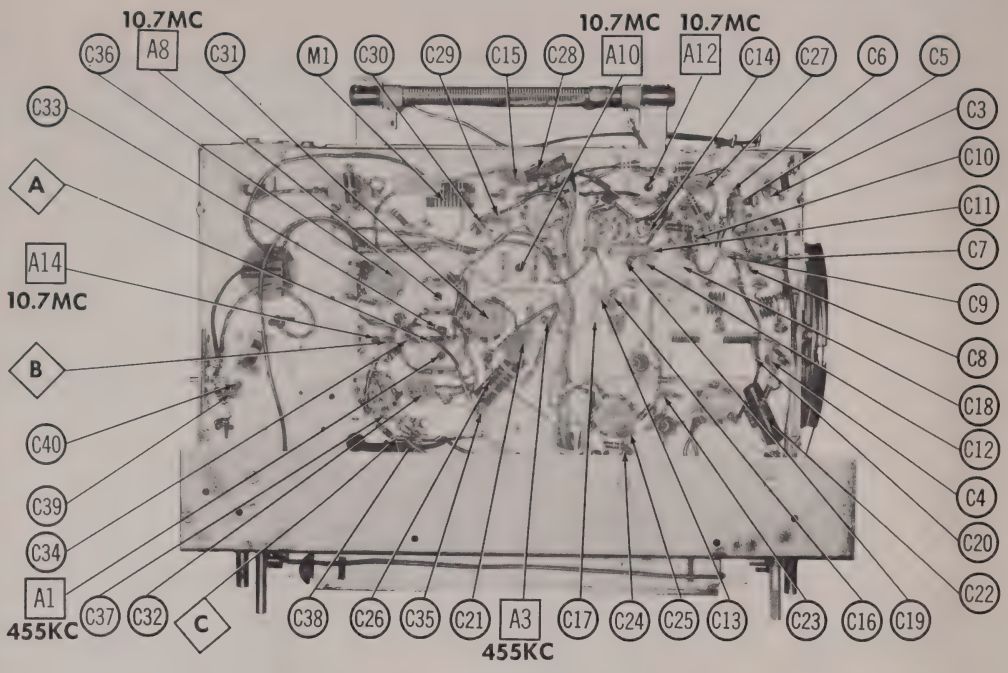
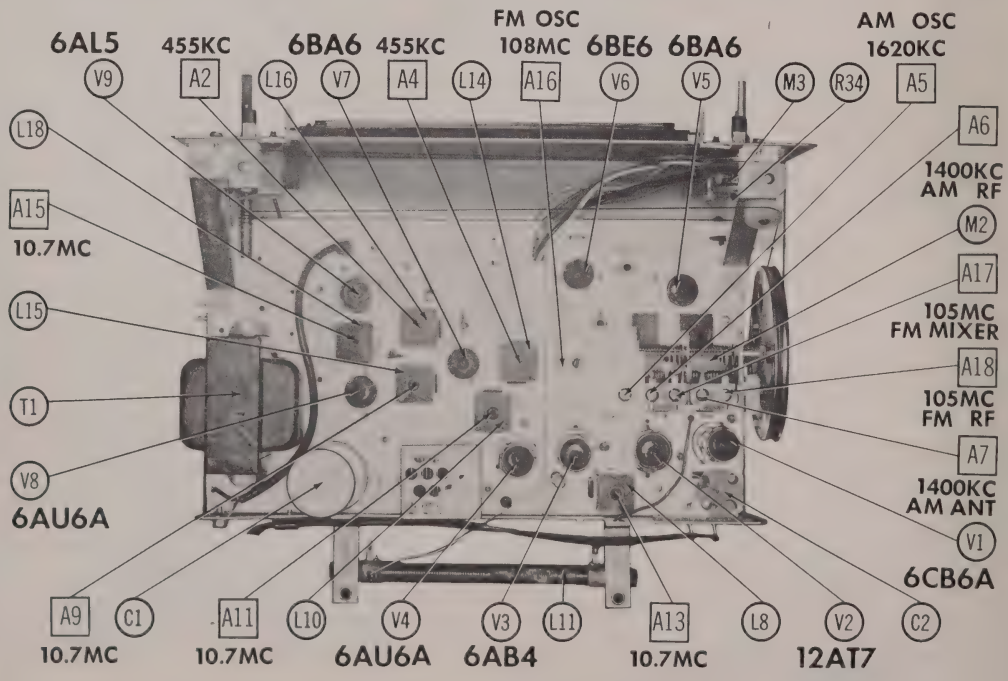


FIG. 2



TUNER CHASSIS - BOTTOM VIEW



TUNER CHASSIS - TOP VIEW

TUNER PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier	6CB6A	V6	AM Converter	6BE6
V2	FM Mixer-FM AFC	12AT7	V7	FM-AM IF Amplifier	6BA6
V3	FM Oscillator	6AB4	V8	FM Limiter-AM Det. -AVC	6AU6A
V4	FM IF Amplifier	6AU6A	V9	Discriminator	6AL5
V5	AM RF Amplifier	6BA6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	200	RS-2538		B0190	FP227.5	TMD-32	TVL-2462	
B	◢60	200			BR4025	TC68	TD-40-250	TVA-1511	
C	■60	200							

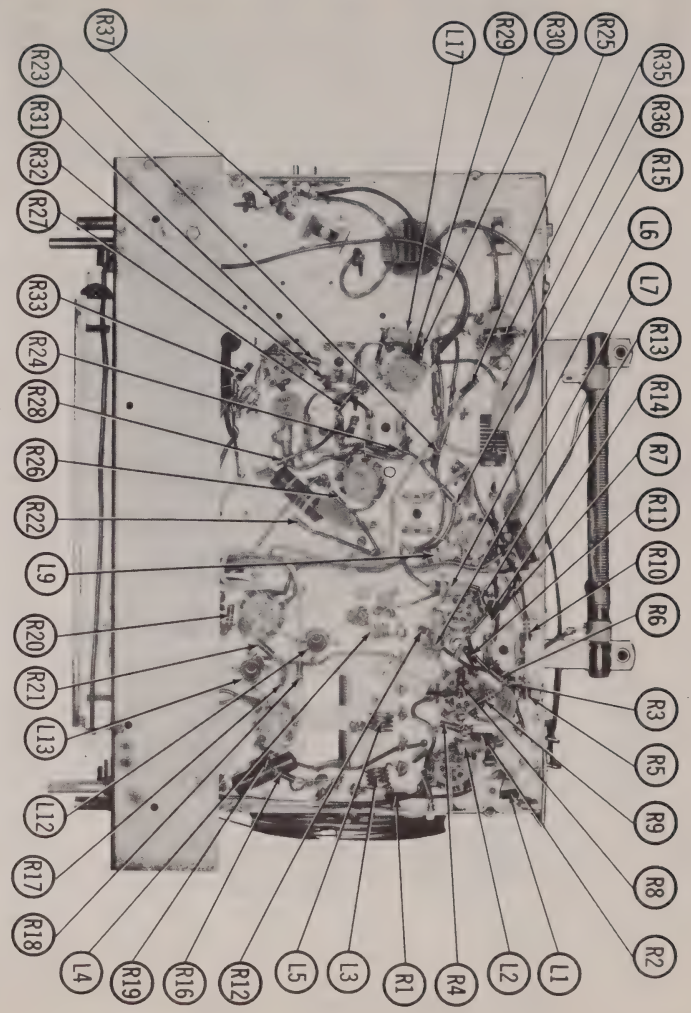
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	10 NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C3	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C4	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C5	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C9	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C10	1		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C11	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C12	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C13	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C14	220		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	2.5 N2200 ± .25mmf					*		
C17	1-5	# RS-2528		829-6				
C18	.1 100V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P1
C19	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	B-150	5HK-S50
C22	.022 200V		P288N-022	DD-203	CUB4S22	4DP-2-203	GEM-4122	2TM-S22
C23	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C24	9 N4700 ± .05mmf	# RS-2529						
C25	47 N750 10%		N750-DI 47	DTN-47	C10Q47C	CCTN-470	CN7-447	10TCU-Q47
C26	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C27	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	.0022 200V		P288N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	2 N750 ± .25mmf	# RS-2537					CN7-522	
C34	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C35	33 N750 10%		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	100 N150	#RS-1303				*		10TCP-T10
C38	680 10%		DI-680	DD-681	1R5T68	CCD-681	GP368	10TS-T68
C39	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C40	220 10%		DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22

G. E. Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

TUNER CHASSIS—BOTTOM VIEW



TUNER PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	2.2meg	(33K) *
R2	10K	
R3	15K 1W	
R4	1meg	
R5	47K	
R6	680Ω	
R7	1000Ω	
R8	33Ω	
R9	470K	
R10	470K	
R11	220Ω	
R12	22K	
R13	220Ω	

ITEM No.	RATING	REMARKS
R14	1meg	
R15	4700Ω	
R16	3.3meg	
R17	12K	
R18	68K	
R19	100Ω	
R20	39K	
R21	33Ω	
R22	2.2meg	
R23	6800Ω	
R24	4700Ω	
R25	330Ω	
R26	68Ω	

ITEM No.	RATING	REMARKS
R27	100K	
R28	100K	
R29	15K	
R30	15K	
R31	100K	
R32	100K	
R33	100K	
R34	470K	
R35	1000Ω 1W	
R36	680Ω 5W	#RS-2535
R37	470K	

G. E. Part Number.
* Alternate Value.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	G. E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .56A	120V @ .035A	6.3V @ 3A	RS-2534					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	G. E. PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.035A	RS-1319 *	1N1763	100 *	SR200 ♦	* Selenium Type ♦ Silicon Type

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		G. E. PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	FM Ant. Coil						
L2	RF Choke	RS-2526	BC-564	4608	RTC-8518	T858	3.3uh ①
L3	FM RF Coil						
L4	FM Mixer Coil						
L5	FM Osc. Coil						
L6	RF Choke	RS-2526	BC-564	4608	RTC-8518	T858	3.3uh ①
L7	Fil. Choke	RS-2527	BC-562	4604	RTC-8516	T856	1.5uh ①
L8	1st FM IF Trans.	RS-2524	BC-254	1463	RTC-8599	T633	
L9	Fil. Choke	RS-2527	BC-562	4604	RTC-8516	T856	1.5uh ①
L10	2nd FM IF Trans.	RS-2524	FM-254	1463	RTC-8599	T633	
L11	Loopstick	RS-2540	BC-419	705-A		T532	
L12	AM RF Coil	RS-2523					
L13	AM Osc. Coil	RS-2522	BC-394	70-OSC	RTC-8647	T502	
L14	1st AM IF Trans.	RS-2533	BC-352	12-C1	RTC-8632	T607	
L15	3rd FM IF Trans.	RS-2524	FM-254	1463	RTC-8599	T633	
L16	2nd AM IF Trans.	RS-2533	BC-353	12-C2	RTC-8633	T608	
L17	Fil. Choke	RS-2527	BC-562	4604	RTC-8516	T856	1.5uh ①
L18	Discriminator	RS-2532	FM-253	1464	RTC-8665	T634	

① IRC Part #CLA.

MISCELLANEOUS

ITEM No.	PART NAME	G.E. PART No.	NOTES
M2	Tuning Cap.	RS-2521	3 Gang, Ant. 13-332mmf, RF 12-217mmf, Osc. 10-143mmf
M3	Switch	RS-2539	Band Selector (Rotary Type)

AMP PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V10	Left Channel AF Amp.	12AX7	V13	Right Channel Output	7189A
V11	Left Channel Output	7189A	V14	Rectifier	5Y3GT
V12	Right Channel AF Amp.	12AX7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G.E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C41A	40	400	RS-2422			WT455		TVL-3744.2	
B	40	350				TC78		TVA-1718	
C	100	350							
D	40	25							
C42	10	15	RS-2561	XPP-15010	NLW10-15	TT15X10	ML10-15	TE-1155	
C43	5	25NP	RS-2423	NP-PRS7405	BBR4-150	TCN504		TVANS-1303.1*	
C44	5	25NP	RS-2423	NP-PRS7405	BBR4-150	TCN504		TVANS-1303.1*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C46	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C47	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C50	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C51	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C52	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C53	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C54	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G.E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R38A	500K	½	RS-2419					Loudness, Right Channel
	250K Tap							
B	500K	½						Loudness, Left Channel
	250K Tap							
R39A	1meg	½	RS-2418					Bass, Right Channel
B	1meg	½						Bass, Left Channel
R40A	1meg	½	RS-2418					Treble, Right Channel
B	1meg	½						Treble, Left Channel
R41A	1meg	½	RS-2420					Balance, Right Channel
B	1meg	½						Balance, Left Channel
C	Switch	½						Push-Pull Stereo-Monaural

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R42	100K	
R43	33K	
R44	100K	
R45	33K	
R46	100K	
R47	1000Ω	

ITEM No.	RATING	REMARKS
R48	100K	
R49	1800Ω	
R50	18K	
R51	470K	
R52	82Ω 3W	#RS-2417
R53	100K	

ITEM No.	RATING	REMARKS
R54	100K	
R55	1800Ω	
R56	18K	
R57	470K	
R58	20K 3W	#RS-2415
R59	5600Ω 5W	#RS-2416

G.E. Part Number.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	117V ② .94A	600VCT ② .090A	5V ② 2A	RS-2425		P-8177 ①			
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT ② 2.2A								

① Drill New Mounting Holes.

AMP PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	G.E. PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	5000Ω	6-8Ω	RS-2424	A-2902①	A-3337 ①	22S88	S-53X①	① Drill New Mounting Hole.
T4	5000Ω	6-8Ω	RS-2424	A-2902①	A-3337①	22S88	S-53X①	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	G.E. PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	RB-1140	8A31Z8	
SP2	4"	PM	6-8Ω	RB-1141	3A15T6.8	
SP3	8"	PM	6-8Ω	RB-1140	8A31Z8	
SP4	4"	PM	6-8Ω	RB-1141	3A15T6.8	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	G.E. PART No.	REPLACEMENT DATA
K1	Tone Comp.	100mmf, 2000mmf, 2000mmf, 20000mmf, 10K, 150K	RS-2421	
K2	Tone Comp.	100mmf, 2000mmf, 2000mmf, 20000mmf, 10K, 150K	RS-2421	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	G.E. PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M4		13TB		26S	S1-1 S3-3	53	J-43 & J-47XD	8TA4-SD	N-8TA-SD

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	G.E. PART No.	CLEVITE WALCO PART No.	JENSEN PART No.	
M5		W-101STS † or W-101STD ♦	J-43 † or J-43D ♦	† Jewel ♦ Diamond
		W-102MGS † or W-102MGD ♦	J-47X † or J-47XD ♦ †	

MISCELLANEOUS

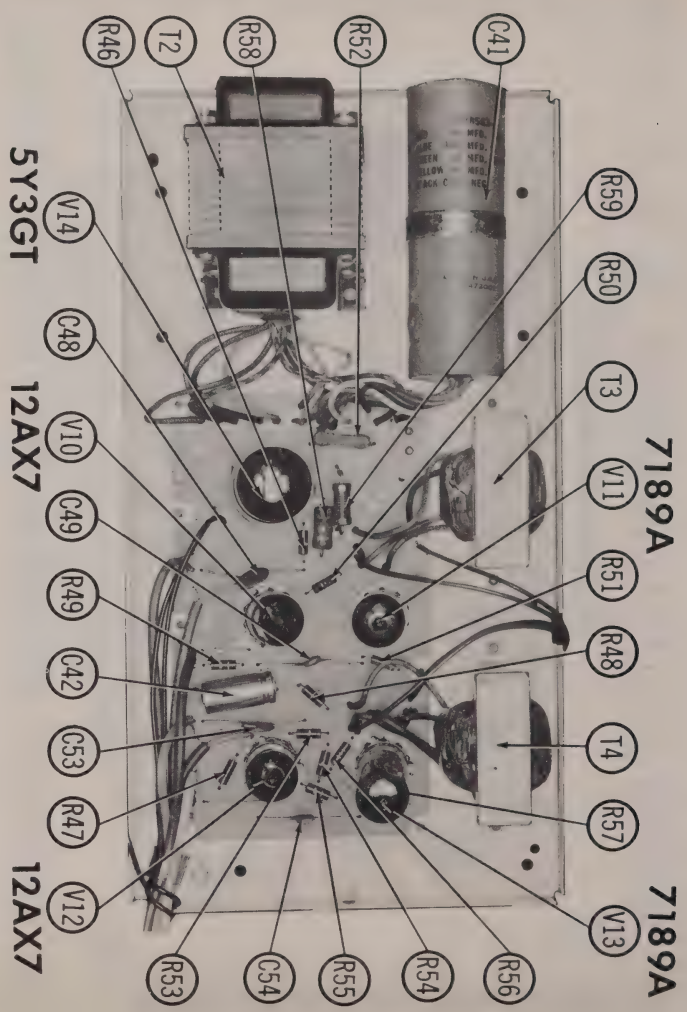
ITEM No.	PART NAME	G.E. PART No.	NOTES
M6	Switch	RS-2426	Function Selector

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob Ass'y.	RS-2440	Tuning, Selector (Includes Spring)
Knob Ass'y.	RS-2414	Loudness, Treble, Bass, Balance. Function (Includes Spring)
Dial Pointer	RS-2518	
Dial Glass	RS-2519	
Cabinet Legs	RS-2409	

AMP CHASSIS - TOP VIEW

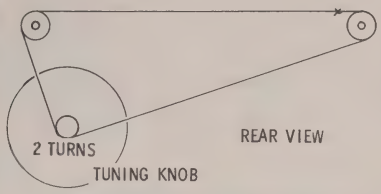


PHOTOFACT® Folder with CIRCUITRACE®

JEFFERSON-TRAVIS
MODEL JT-F211

JEFFERSON-TRAVIS
MODEL JT-F211

DIAL CORD STRINGING



TUNING GANG FULLY COUNTER CLOCKWISE

TRADE NAME	Jefferson-Travis Model JT-F211
SUPPLIER	Jefferson-Travis, Inc., Subsidiary of Emerson Radio & Phonograph Corp., 524 W. 23rd St., New York 11, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC RATING 4MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	540 — 1600KC 7MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools: A4, A7.... GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1650KC	"	"	A4	"
3.	"	525KC	Tuning gang fully closed.	"	A5, A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF246

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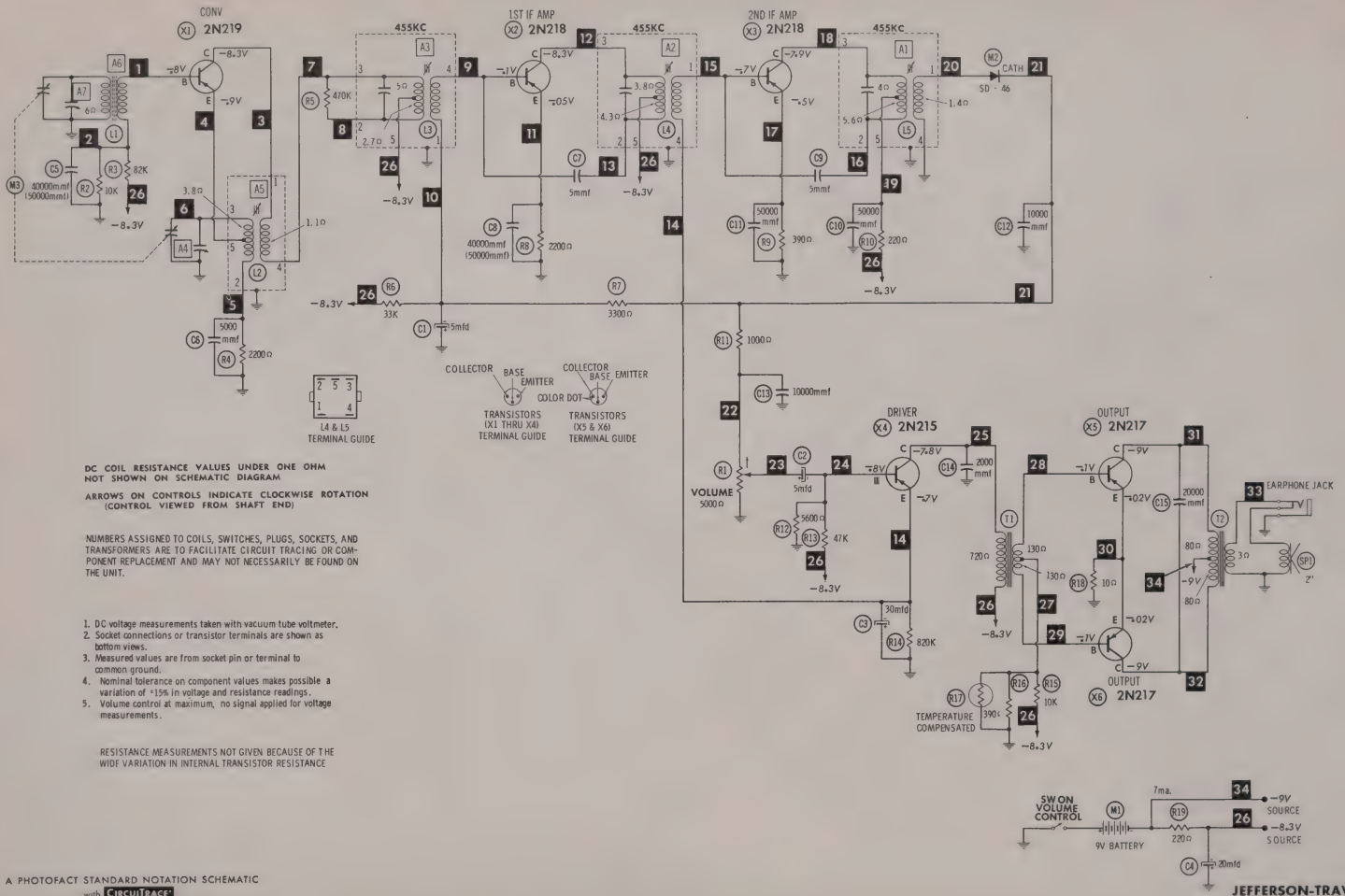
SET 519 FOLDER 6



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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JEFFERSON-TRAVIS MODEL JT-F211

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N219	Converter	2N219	2N486	2N219	PNP
X2	2N218	1st IF Amplifier	2N218	2N483	2N218	PNP
X3	2N218	2nd IF Amplifier	2N218	2N483	2N218	PNP
X4	2N215	Driver	2N407	2N362	2N104	PNP
X5	2N217	Output	2N217	2N633	2N217	PNP
X6	2N217	Output	2N217	2N633	2N217	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Jefferson-Travis PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	5	6	CD-231			TT6X5			
C2	5	6	CD-231			TT6X5			
C3	30	3	CD-232B						
C4	20	10	CD-233B						

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	40000	(50000) †						
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	5		DI-5	DD-050	L10V5	CCD-050	GP550	10TS-V50
C8	40000	(50000) †						
C9	5		DI-5	DD-050	L10V5	CCD-050	GP550	10TS-V50
C10	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C11	50000		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C12	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C13	10000		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C14	2000		BPD-002	DM-202	BYA10D2	CCD-202	B-220	5HK-D20
C15	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

† Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Jefferson-Travis PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	RD-130					Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	10K	
R3	82K	
R4	2200Ω	
R5	470K	
R6	33K	
R7	3300Ω	

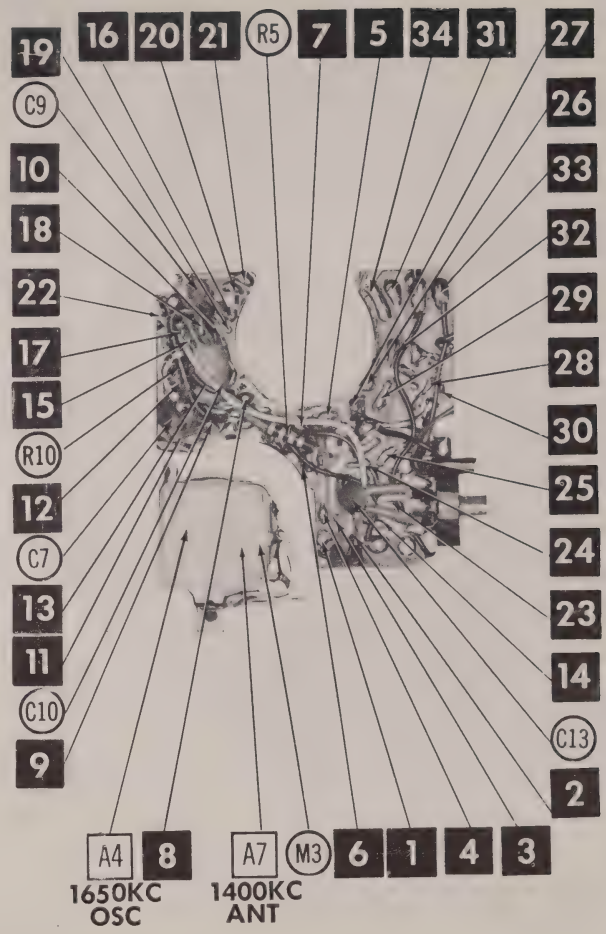
ITEM No.	RATING	REMARKS
R8	2200Ω	
R9	390Ω	
R10	220Ω	
R11	1000Ω	
R12	5600Ω	
R13	47K	

ITEM No.	RATING	REMARKS
R14	820Ω	
R15	10K	
R16	390Ω	
R17	Temp. Comp.	#B-2B
R18	10Ω	
R19	220Ω	

Jefferson-Travis Part Number.

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Jefferson-Travis PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	LT-151K				
L2	Osc. Coil	LT-226				
L3	1st IF Trans.	LT-327A				
L4	2nd IF Trans.	LT-327B				
L5	3rd IF Trans.	LT-327C				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Jefferson-Travis PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2	1	LT-514			TR-125		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Jefferson-Travis PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	250Ω CT	6-8Ω	LT-437			TR-47		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Jefferson-Travis PART No.	QUAM PART No.	
SP1	2"	PM	6-8Ω	SP5-01		

BATTERIES

ITEM No.	VOLTAGE	Jefferson-Travis PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		Jefferson-Travis PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	SD-46	SD-46		1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Jefferson-Travis PART No.	NOTES
M3	Tuning Cap.	CD-131	2 Gang

CABINETS & CABINET PARTS

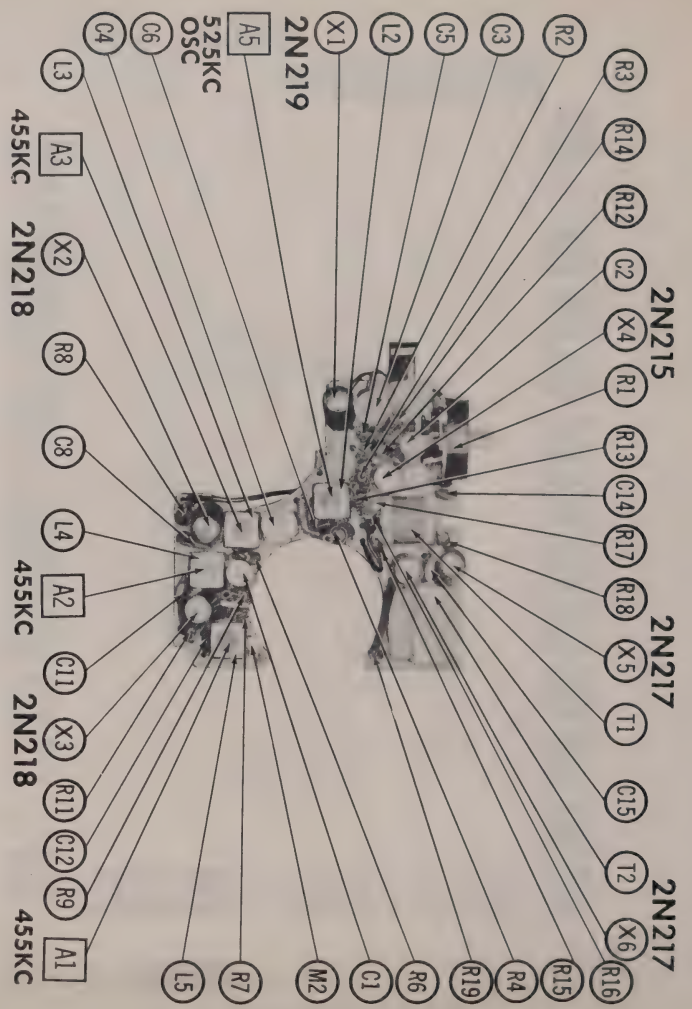
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	JT-2780	Tuning
Knob	JT-2781	Volume
Cabinet	JT-2779	Back
Cabinet	JT-2778	Front, Includes Dial Glass

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

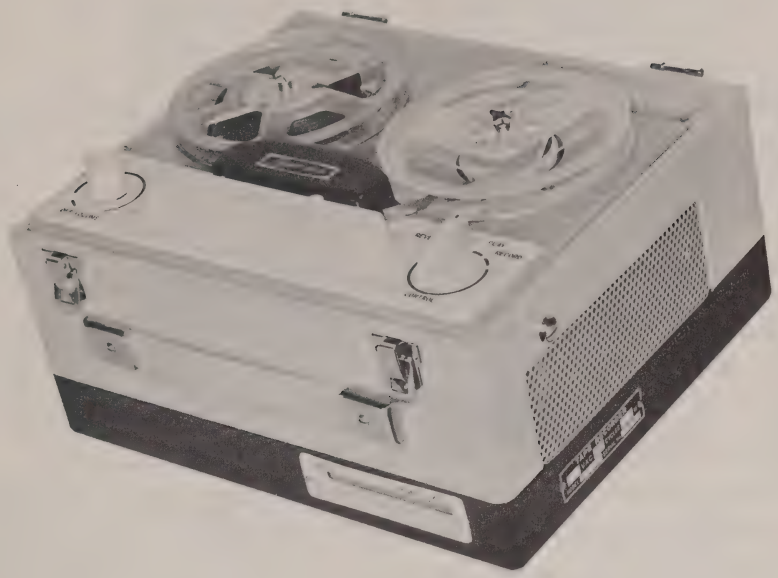
CHASSIS—TOP VIEW



PHOTOFACT® Folder

LAFAYETTE
MODEL TR-101

LAFAYETTE
MODEL TR-101



LAFAYETTE
MODEL TR-101

GENERAL INFORMATION

The Lafayette Model TR-101 tape recorder is a two-speed tape recorder designed to play and record two tracks of material on standard-width recording tape.

Recordings may be made from a phonograph, radio, or television receiver as well as those made from the microphone.

The two tape speeds are 7 1/2 and 3 3/4 ips. Using both tracks, the recording and playing times are as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour

This recorder is designed to operate on 60 cycles, 110— 120 volts, AC supply only.

Supplied By:

Lafayette Radio
165—08 Liberty Avenue
Jamaica 33, New York

SET 519 FOLDER 7

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CQ449

PREPARING FOR OPERATION

1. Remove lid from carrying case.
2. Remove the AC cord and accessories from the storage compartment at the top rear of the case.
3. Plug the AC cord into a convenient outlet of proper power rating.

FUNCTION OF CONTROLS

On-Off Volume

Turn this control clockwise to turn the power on to the unit. Further rotation increases the volume on playback and the recording level on record.

Selector

This control selects the different modes of operation. Turning this control counterclockwise from the Stop position, places the unit in the Rewind mode. Turning the control clockwise from the Stop position to the first position, places the unit in Play; the second position places the unit in Record.

Speed Change

With the small brass bushing (9) on the capstan and flywheel assembly (15) the tape speed will be 3 3/4 ips. To change speeds to 7 1/2 ips, remove knurled screw (8) from the capstan and remove the small bushing. Replace it with the large brass bushing and replace the thumb screw.

OPERATING INSTRUCTIONS

Threading the Tape

1. Place a reel of tape on supply reel stand (58).
2. Place an empty reel on takeup reel stand (18).
3. Unwind about 10" of tape from the reel. Hold a section taut and insert it in the tape slot. Make sure the dull coated side faces the rear of the recorder.
4. Insert the free end of the tape into one of the radial slots in the hub of the takeup reel. Turn the reel several turns counterclockwise to fasten the tape to the reel and to take up all slack between reels.

To Record from Microphone

1. Rotate the On-Off Volume control to the right to turn the recorder on. Allow sufficient time for the tubes to warm up.
2. Insert the microphone plug into the "Mic" jack.
3. Set the recorder for the desired speed.
4. Turn the Selector knob to the Record position.
5. Place the microphone about 6 to 12 inches from the signal source.
6. Adjust the Volume control until the record level indicator flashes on the highest peaks.

NOTE: Correct volume level when recording is very important. Too weak a signal will result in weak playback and high background noise. Too strong a signal will result in distortion during playback.

Recording Radio Programs

Radio programs may be recorded by one of the following methods:

1. Microphone Pickup from Radio Speaker — Place the microphone about 6 to 12 inches in front of the radio speaker. Turn the radio volume control to a normal level. Turn the radio tone control to treble or high. Set the recording level and record as under "To Record from Microphone".
2. Direct Connection to Radio Speaker — Make a shielded cable with a two-conductor phone plug on one end and two alligator clips on the other end. Connect the alligator clips across the voice coil terminals of the radio speaker and insert the plug into the "Phono" jack. Set the radio volume and tone controls as described in Step 1. Set the recording level and proceed as described under "To Record from Microphone".
3. Direct Connection to Volume Control of Radio — Make a shielded cable with a two-conductor phone plug on one end. Connect the other end across the radio volume control. Insert the phone plug into the "Phono" jack. Set the recording level and record as described under "To Record from Microphone". The setting of the radio volume and tone controls will have no effect on this setup.

To Record from Phonograph

A phono-type plug is required on the pickup leads. Insert it into the "Phono" jack and proceed as described under "To Record from Microphone".

To Record from a Television Receiver

Use one of the methods described under "Recording Radio Programs".

Dual Track Recording

This recorder is designed to record and play on one-half the width of the tape at a time; thereby, re-

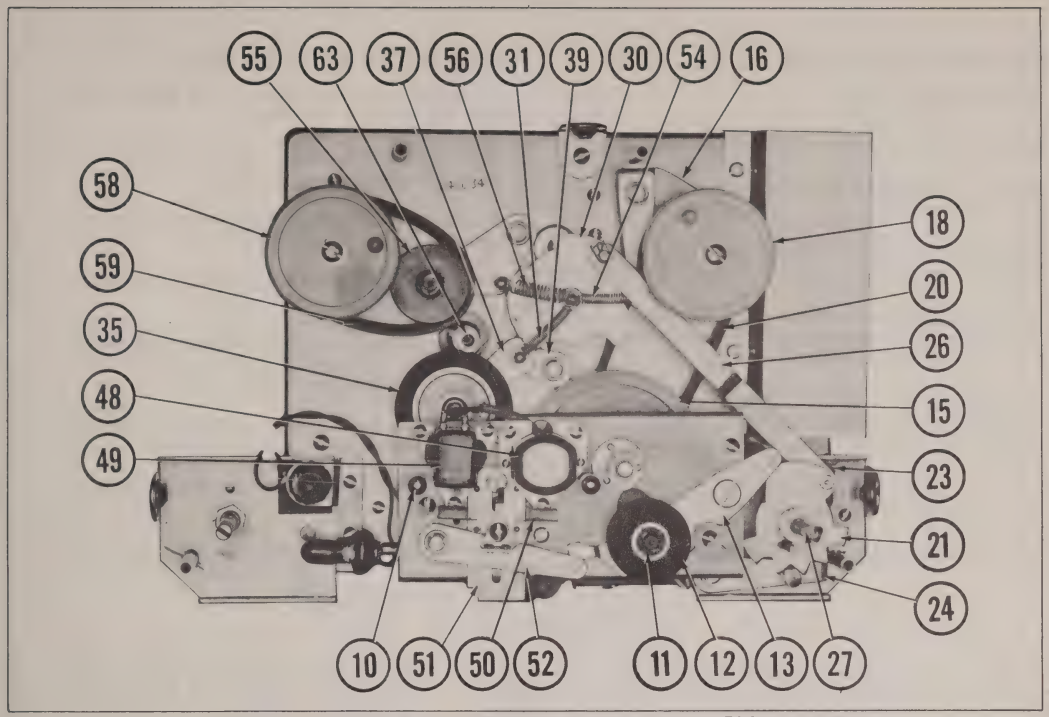


FIG.1 TOP VIEW OF MECHANISM WITH DRESS PLATE REMOVED

sulting in two-track recording. After the first recording is completed, remove the full reel from the takeup reel stand (18), turn the reel over and place it on the supply reel stand (58). The second track can now be recorded. The tape can be played back in the same manner.

Rewind

To rewind the tape at a rapid speed, turn the selector knob to the Rewind position.

To Play a Recording

1. Thread the tape as described under "Threading the Tape".
2. Turn Selector knob to the Play position.
3. Adjust the Volume control to the desired listening level.

To Erase a Recording

Any recording on the tape is automatically erased before a new recording is made with the unit in Record. Should it be desired to erase a recording without recording new material, follow the normal recording procedure but set the Volume control fully counterclockwise and leave the microphone disconnected.

To Edit and Splice Tape

NOTE: It is impossible to edit and splice one track without affecting the other. Recordings to be edited should be limited to one track recordings only.

1. Tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements can be inserted between selections, etc. Unused tape can be spliced for reuse.
2. For best results, cut tape at a slight diagonal, butt ends together and fasten on the glossy side with splicing tape. Trim off any excess width.

CLEANING

The tape guides, erase head, record-playback head, pressure roller, and capstan should be cleaned with alcohol to remove the tape residue from these parts.

DISASSEMBLY

To Remove Recorder from the Case

1. Remove Head Cover (1).
2. Remove On-Off Volume and Selector knobs.
3. Remove two screws from escutcheon (4) and remove escutcheon.
4. Remove four screws from dress plate and remove dress plate (5).
5. Remove five screws, one from right end of case, one from rear of case, two from left end of case, and one from bottom of case.
6. Lift recorder up and away from case far enough so the speaker can be disconnected and the power transformer unbolted from the bottom of the case.
7. Lift entire unit from case.
8. Reverse above procedure to reassemble.

To Remove Amplifier from Tape Transport

1. Remove the hex nut from the On-Off Volume control and remove the control.
2. Remove the record level and ready lights from the rubber grommet mountings.
3. Disconnect the motor leads from the terminal board.
4. Remove the terminal board from the mounting bracket.
5. Disconnect the record-playback and erase heads.
6. Remove the amplifier chassis cover.
7. Remove the four screws holding the chassis mounting brackets to the tape transport.
8. Remove the blade switch and coil from their mountings.
9. Reverse the above procedure to reassemble.

LUBRICATION

Under normal operation, no lubrication should be required for a long period of time. When the unit is disassembled for repair, lubricate the cams and levers with a non-hardening grease. Make sure no lubricant gets on the rubber surfaces of the drive wheels.

TROUBLE CHART

Symptom	Cause	Remedy
No Record or Playback	1. Drive belt (20) broken.	1. Replace drive belt.
	2. Idler wheel tension spring (31) broken or disconnected.	2. Connect or replace spring.
	3. Tension spring (53) disconnected or broken.	3. Replace tension spring.
	4. Defective record-playback head (48).	4. Replace record-playback head.
No Rewind	1. Rewind drive belt (59) broken.	1. Replace rewind drive belt.
	2. Rewind lever tension spring (56) broken or disconnected.	2. Connect or replace spring.
No Erase	1. Defective erase head (49).	1. Replace erase head.
	2. Tension spring (53) disconnected or broken.	2. Connect or replace tension spring.
Takeup reel spindle slips.	1. Felt washer on takeup reel pulley (19) worn.	1. Replace takeup reel pulley.
	2. Oil or grease on drive belt (20), flywheel (15), and takeup reel pulley (19).	2. Clean oil or grease from these parts.

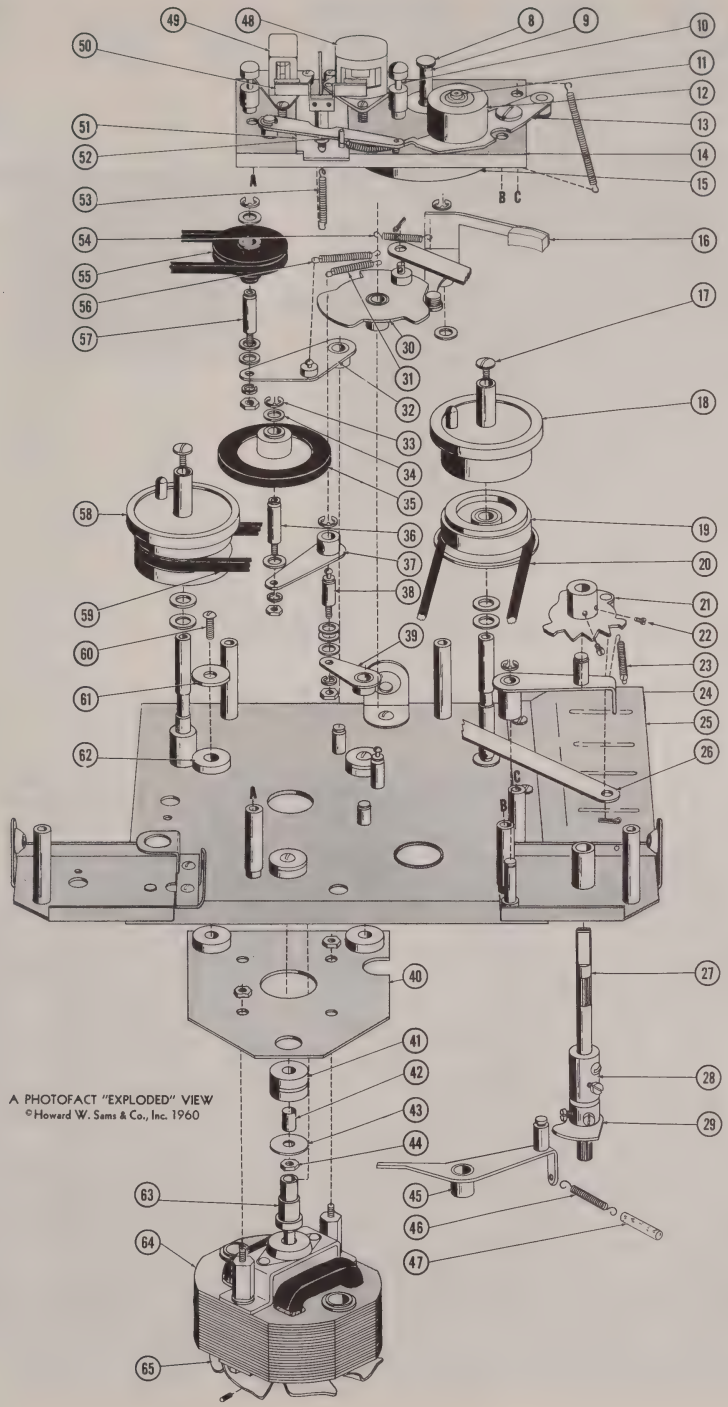
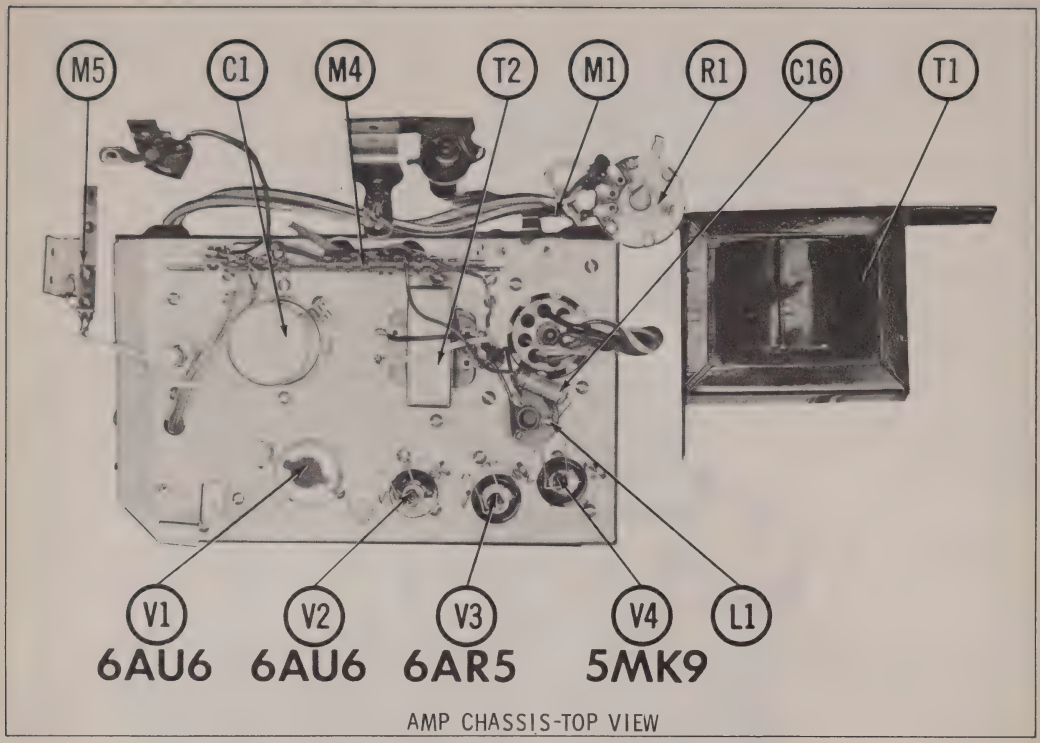
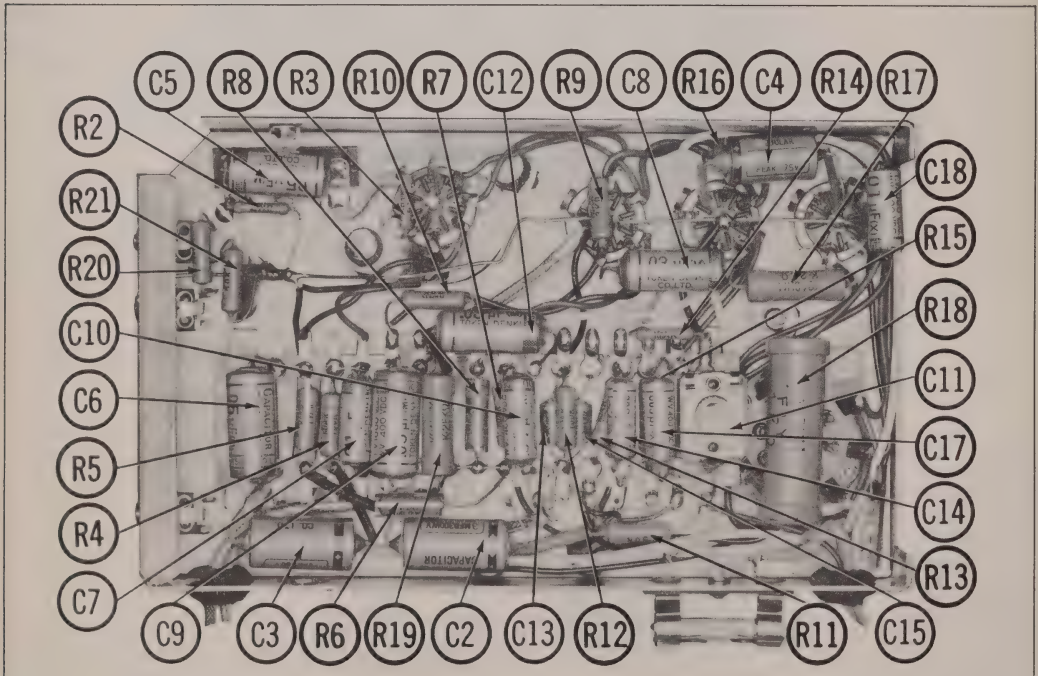


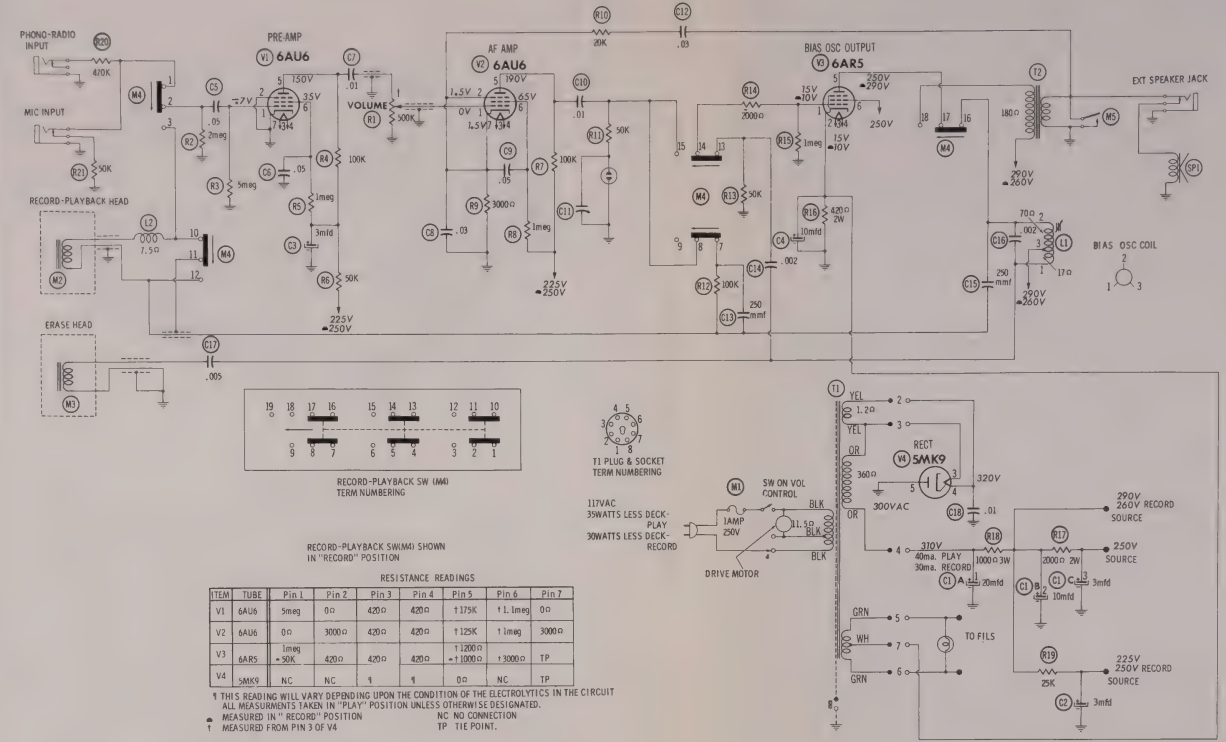
FIG. 2 EXPLODED VIEW OF PARTS



AMP CHASSIS-TOP VIEW



AMP CHASSIS-BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6AU6	5meg	0Ω	420Ω	420Ω	†175K	†1.1meg	0Ω
V2	6AU6	0Ω	3000Ω	420Ω	420Ω	†125K	†1meg	3000Ω
V3	6AR5	1meg ÷ 50K	420Ω	420Ω	420Ω	†1200Ω ÷ †1000Ω	†3000Ω	TP
V4	5MK9	NC	NC	¶	¶	0Ω	NC	TP

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTICS IN THE CIRCUIT
ALL MEASURMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
● MEASURED IN " RECORD" POSITION
† MEASURED FROM PIN 3 OF V4
NC NO CONNECTION
TP TIE POINT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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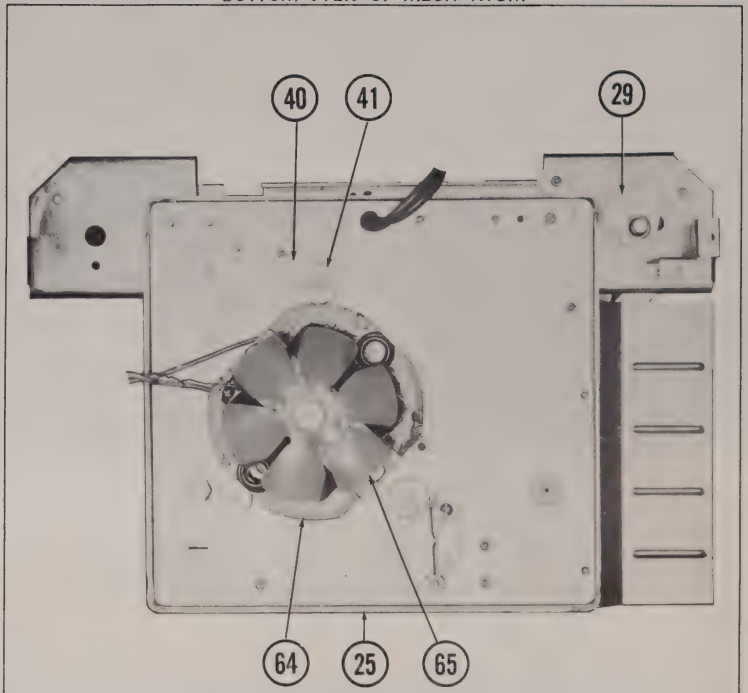
LAFAYETTE MODEL TR-101

MECHANICAL PARTS LIST

Ref. No.	Description
1	Head Cover
2	Function Control Knob
3	Screw
4	Escutcheon
5	Dress Plate
6	Screw
7	On-Off Volume Knob
8	Knurled Screw
9	3 3/4 ips Bushing
10	Tape Guide
11	"C" Washer
12	Pressure Roller
13	Pressure Roller Actuating Lever
14	Head Mounting Plate
15	Flywheel and Capstan Assembly
16	Brake Lever and Pad Assembly
17	Screw
18	Takeup Reel Stand
19	Takeup Reel Pulley
20*	Drive Belt *
21	Function Cam
22	Set Screw
23	Tension Spring
24	Function Cam Locking Lever
25	Baseplate
26	Function Cam Operating Lever
27	Function Control Shaft
28	Spacer
29	Function Control Shaft Cam
30	Operating Cam
31	Idler Wheel Tension Spring
32	Rewind Lever
33	"C" Washer
34	Fiber Washer
35	Idler Wheel
36	Idler Wheel Spindle
37	Idler Wheel Lever
38	Idler Wheel Lever Spindle
39	Idler Wheel Pivot Lever
40	Motor Mounting Plate
41	Grommet
42	Spacer
43	Washer
44	Hex Nut
45	Switch Lever
46	Switch Lever Tension Spring
47	Spring Cover
48	Record-Playback Head
49	Erase Head
50	Pressure Pad Assembly
51	Guide Plate
52	Pressure Pad Control Lever
53	Tension Spring
54	Brake Lever Tension Spring
55	Rewind Pulley
56	Rewind Lever Tension Spring
57	Rewind Pulley Spindle
58	Supply Reel Stand
59	Rewind Drive Belt
60	Screw
61	Washer
62	Shock Mount
63	Motor Service Pulley
64	Motor
65	Fan

BOTTOM VIEW OF MECHANISM



* Drive Belt, WALSCO Part No. 1410-10

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Preamplifier	6AU6
V2	AF Amplifier	6AU6
V3	Bias Osc. -Output	6AR5
V4	Rectifier	5MK9

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA LAFAYETTE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	①20	350						TVL-3639. 6*	
B	②10	350							
C	③3	350							
C2	3	300		PRS1600	BR435	TC697	TD-4-450	TVA-1601	
C3	3	300		PRS1600	BR435	TC697	TD-4-450	TVA-1601	
C4	10	50		PRS1320	BBR10-50	TC32	TD-10-50	TVA-1304	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C6	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C7	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C8	.03 400V		P488N-03	DD-303	CUB6S3	4DP-2-303	GEM-413	4TM-S30
C9	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C10	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C11								
C12	.03 400V		P488N-03	DD-303	CUB6S3	4DP-2-303	GEM-413	4TM-S30
C13	250		SI 250	D6-251	L10T25	CCD-251	GP325	10TS-T25
C14	.002 400V		P488N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C15	250		SI 250	D6-251	L10T25	CCD-251	GP325	10TS-T25
C16	.002 400V		P488N-002	D6-202	CUB6D2	6DP-1-202	GEM-622	6TM-D20
C17	.005 400V		P488N-005	D6-502	CUB6S5	6DP-1-502	GEM-625	6TM-D50
C18	.01 400V		P488N-01	D6-103	CUB4S1	6DP-1-103	GEM-411	4TM-S10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA LAFAYETTE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		AB-60				Volume
B	Shaft			AK-29				
C	Switch			KR-1				Power Off-On

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	2meg			
R3	5meg			
R4	100K			
R5	1meg			
R6	50K			
R7	100K			
R8	1meg			
R9	3000Ω			
R10	20K			
R11	50K			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R12	100K			
R13	50K			
R14	2000Ω			
R15	1meg			
R16	420Ω 2W			
R17	2000Ω 2W			
R18	1000Ω 3W			
R19	25K			
R20	470K			
R21	50K			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	Bias Osc.					
L2	RF Choke					

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES*
T1	117V @ .45A Tap @ 105V	300V @ .040A DC	5V @ .6A						
	SEC. 3	SEC. 4	SEC. 5						
	6.3VCT @ 1.1A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA LAFAYETTE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6800Ω	3-4Ω		A-2931	A-3877	24S51	S-49X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA LAFAYETTE PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω		5A1	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA LAFAYETTE PART No. FUSE	LAFAYETTE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A 250V						

MISCELLANEOUS

ITEM No.	PART NAME	LAFAYETTE PART No.	NOTES
M2	Head		Playback - Record
M3	Head		Erase
M4	Switch		Function (Slide Type)
M5	Switch		

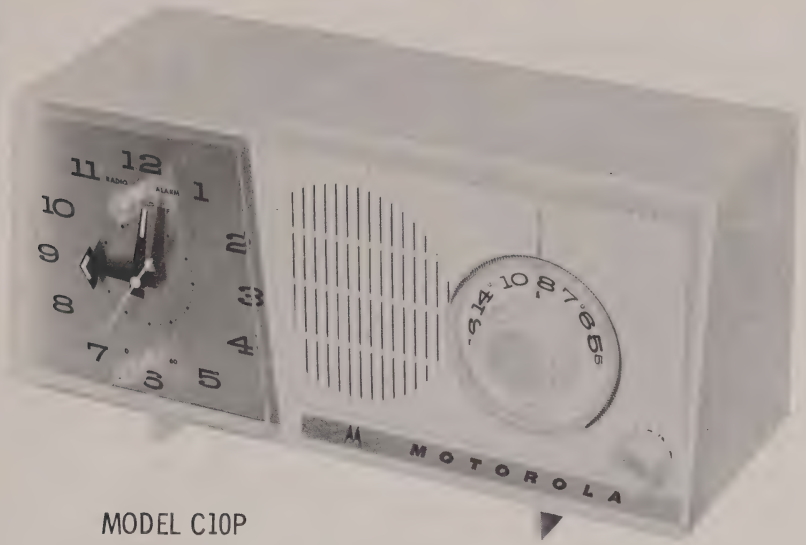
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

MOTOROLA MODELS C10P, N, W, C11B, G, S (Ch. HS-813, HS-814)

MOTOROLA MODELS C10P, N, W, C11B, G, S (Ch. HS-813, HS-814)



MODEL C10P

TRADE NAME	Motorola Models C10N, C10P, C10W (Ch. HS-813); C11B, C11G, C11S (Ch. HS-814)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver With Electric Clock
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 26 Watts, .26 Amp. @ 117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	535 — 1620KC

ALIGNMENT INSTRUCTIONS

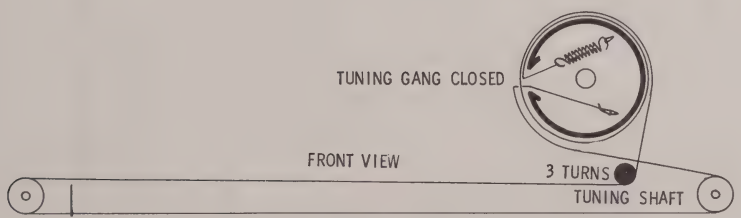
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 Thru A4.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1620KC	"	"	A5	"

DIAL CORD STRINGING



USED IN MODELS C11 SERIES ONLY

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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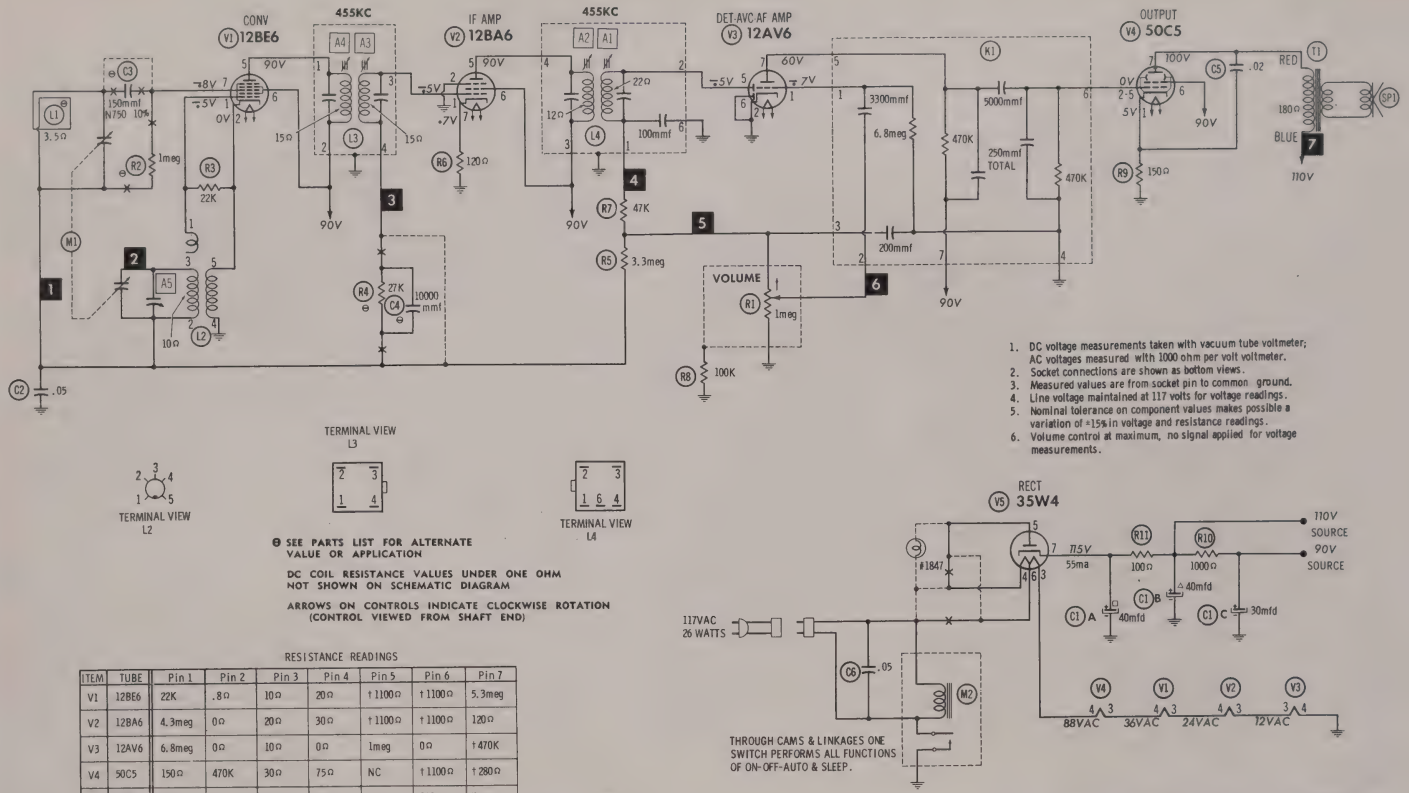
KG432

SET 519 FOLDER 8



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

TERMINAL VIEW L2

TERMINAL VIEW L3

TERMINAL VIEW L4

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	10Ω	20Ω	†1100Ω	†1100Ω	5.3meg
V2	12BA6	4.3meg	0Ω	20Ω	30Ω	†1100Ω	†1100Ω	120Ω
V3	12AV6	6.8meg	0Ω	10Ω	0Ω	1meg	0Ω	†470K
V4	50C5	150Ω	470K	30Ω	75Ω	NC	†1100Ω	†280Ω
V5	35W4	NC	NC	75Ω	105Ω	105Ω	100Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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MOTOROLA MODELS C10P, N, W, C11B, G, S (Ch. HS-813, HS-814)

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12BE6	V4	Output	50C5
V2	IF Amplifier	12BA6	V5	Rectifier	35W4
V3	Det. -AVC-AF Amp.	12AV6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■40	150	23B639496	PWH3-11-30	C0090 ‡	PFP311.63	TMT-3127 †	PCL-3441.2	
B	▲40	150							
C	30	150							

‡ Use printed circuit adapters #55277 & 55278.
† Use printed circuit adapters TMAL & TMAS.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C3	150 N750 10%	Note 1	N750-DI 150	DTN-150	C10T15U	CCTN-151	CN7-315	10TCU-T15
C4	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C6	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

Note 1. Not used in Chassis HS-814.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	½	18B646709C					Volume

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	1meg	Note 1
R3	22K	
R4	27K	Note 1
R5	3.3meg	

ITEM No.	RATING	REMARKS
R6	120Ω	
R7	47K	
R8	100K	
R9	150Ω	

ITEM No.	RATING	REMARKS
R10	1000Ω	
R11	100Ω	

Note 1. Not used in Chassis HS-814.

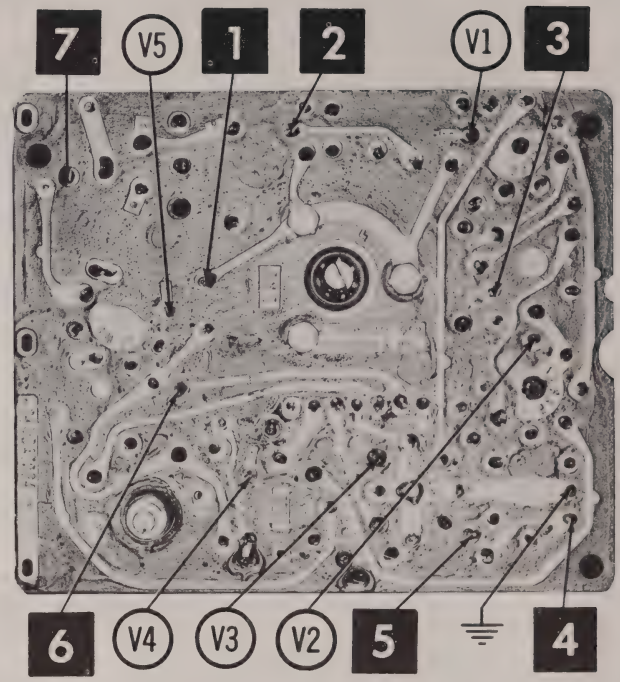
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loop Ant.	24D646992 ①				①Model C10P, Part #24K647010 used in Model C10N
L2	Osc.	24B646708				Part #24K647009 used in Model C10W
L3	Input IF Trans.	24K646859	BC-356	13-PC1	RTC-8641	Part #24K647013 used in Model C11B
L4	Output IF Trans.	24K646705		13-PC6 *	RTC-8643 *	Part #24K647011 used in Model C11G
						Part #24K647012 used in Model C11S
						* Remove Pin #5

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2100Ω	6-8Ω	Part of SP1)					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	50D60113A01 *	4A07Z8	* Includes T1

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Audio Coupling	200mmf, 250mmf 3300mmf, 5000mmf, 470K, 470K, 6.8meg.	51B643849	Aerovox PA-512-3 Centralab PC-158 Sprague DT-5

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Cap	19B646812	2 Gang
M2	Clock Assembly	1V60030A27	Less Hands, Models C10 Series
	Clock Assembly	1V60030A28	Less Hands, Models C11 Series
	Printed Board	84C647004	Model C10 Series. Less All Components(when ordering specify part number and letter following "BM" marking on bottom of board)
	Printed Board	84K647006	Model C11 Series. Less All Components (when ordering specify part number and letter following "BM" marking on bottom of board.)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

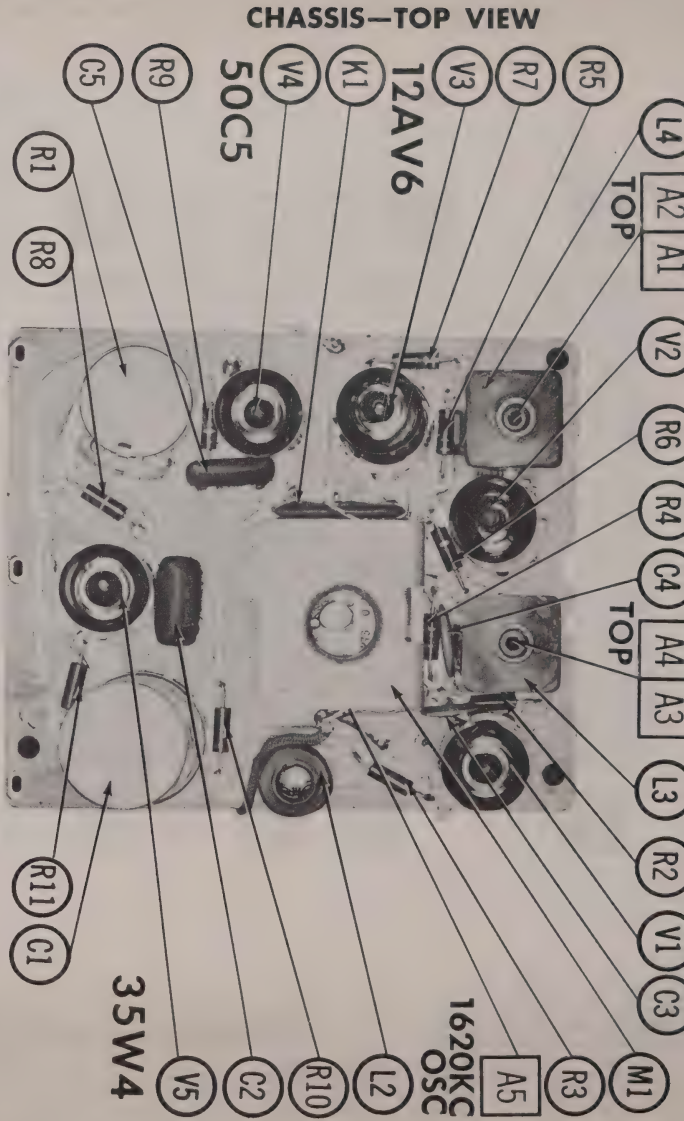
NAME	PART NO.	DESCRIPTION
Dial Pointer	52A60187A01	Model C11 Series
Dial Scale	61C646807	Model C11 Series
Crystal	61C646804	Clock
Knob	38B646805	Volume, Model C10 Series
Knob	38B646805	Volume and Tuning, Model C11 Series
Knob	36C646801	Tuning, Model C10 Series
Knob	38B646806	Clock
Pushbutton	1V60030A31	Alarm, Model C11B
Pushbutton	1V60030A29	Alarm, Model C11G
Pushbutton	1V6003A30	Alarm, Model C11S
Cabinet	1V60034A83	Model C10N
Cabinet	1V60034A81	Model C10P
Cabinet	1V60034A82	Model C10W
Cabinet	1V60034A95	Model C11B
Cabinet	1V60034A93	Model C11G
Cabinet	1V60034A94	Model C11S

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—TOP VIEW



PHOTOFACT® Folder

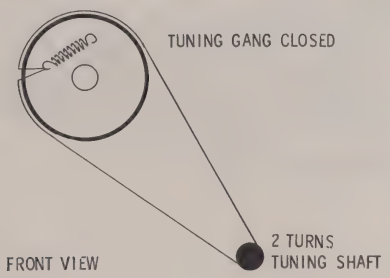
OLSON
MODEL RA-342

OLSON
MODEL RA-342

OLSON
MODEL RA-342

TRADE NAME	Olson Model RA-342		
SUPPLIER	Olson Radio Corp., 260 S. Forge Street, Akron 8, Ohio		
TYPE SET	AC-DC Operated 7 Tube FM-AM Receiver		
POWER SUPPLY	110 — 120 Volts AC-DC	RATING	30 Watts, .31 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 — 1605KC	FREQ. MOD.	88 — 108MC

DRIVE CORD STRINGING



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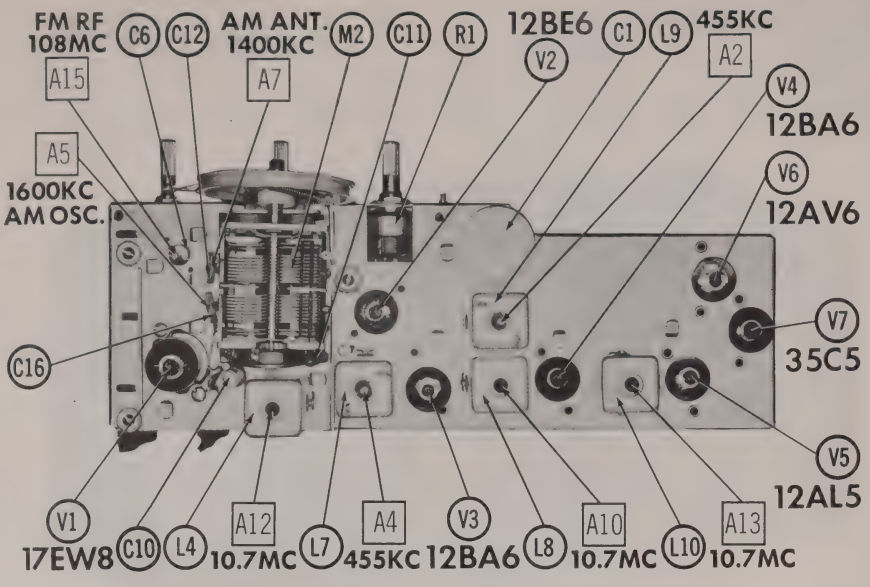
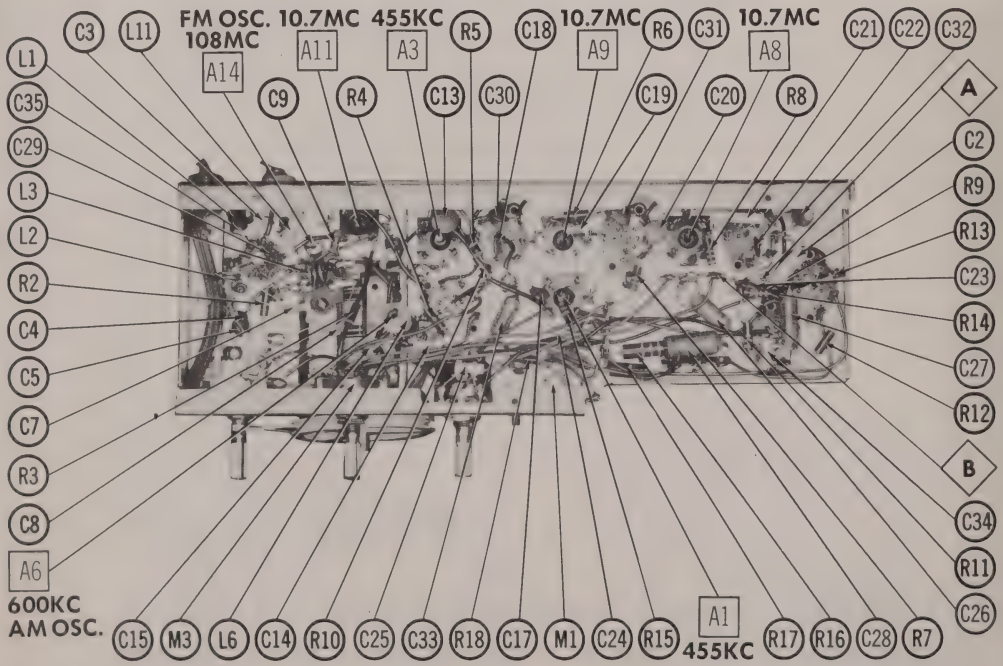
KK235

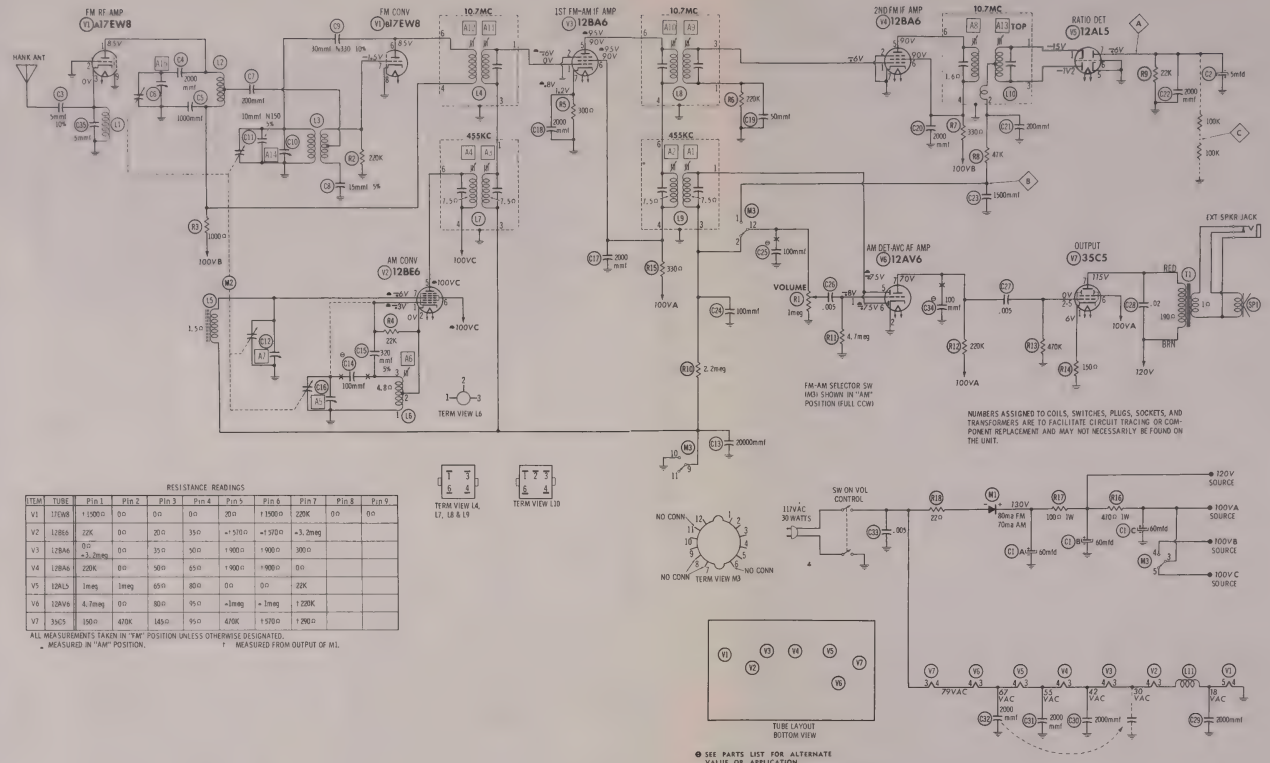
SET 519 FOLDER 9



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW


FM RF AMP V1 A17EW8
FM CONV V1 B17EW8
10.7MC
1ST FM-AM IF AMP V3 12BA6
10.7MC
2ND FM IF AMP V4 12BA6
10.7MC
RATIO DET V5 12AL5
HANK ANT
455KC
455KC
AM CONV V2 12BE6
AM DET-AVC AF AMP V6 12AV6
OUTPUT V7 35C5
EXT SPKR JACK
VOLUME
FM-AM SELECTOR SW (NO) SHOWN IN "AM" POSITION (FULL CCW)
TERM VIEW L6
TERM VIEW L4, L7, L8 & L9
TERM VIEW L10
NO CONN
NO CONN
TERM VIEW M3
SW ON VOL CONTROL
117VAC 30 WATTS
120V SOURCE
100VA SOURCE
100VB SOURCE
100V C SOURCE
TUBE LAYOUT BOTTOM VIEW
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12EW8	†1500Ω	0Ω	0Ω	0Ω	20Ω	†1500Ω	220K	0Ω	0Ω
V2	12BE6	22K	0Ω	20Ω	35Ω	≠1570Ω	≠3.2meg	≠3.2meg		
V3	12BA6	0Ω ≠3.2meg	0Ω	35Ω	50Ω	†900Ω	†900Ω	300Ω		
V4	12BA6	220K	0Ω	50Ω	65Ω	†900Ω	†900Ω	0Ω		
V5	12AL5	1meg	1meg	65Ω	80Ω	0Ω	0Ω	22K		
V6	12AV6	4.7meg	0Ω	80Ω	95Ω	≈1meg	≈1meg	†220K		
V7	35C5	150Ω	470K	145Ω	95Ω	470K	†570Ω	†290Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
≠ MEASURED IN "AM" POSITION. † MEASURED FROM OUTPUT OF M1.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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OLSON
MODEL RA-342

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
A1 Thru A4, A14, A15. . GENERAL CEMENT #8721, 8722
WALSCO #2519
A5, A7. . . . . GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A6, A8 Thru A13. . . . . GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A5	"
3.	Loop	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 2, 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .01mfd to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
6.	"	"	"	DC probe to point (B). Common to point (C).	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .01mfd to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point (A). Low side to chassis.	A8, A9, A10, A11, A12	Disconnect stabilizing capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
6.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A13	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108MC (Unmod.)	(FM) 108MC	DC probe to point (A). Common to chassis.	A14, A15	Adjust for maximum deflection.

FIG. 1

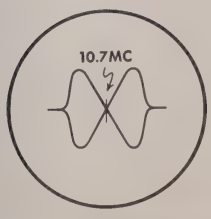


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	FM RF Amp. -FM Conv.	17EW8
V2	AM Converter	12BE6
V3	1st FM-AM IF Amplifier	12BA6
V4	2nd FM IF Amplifier	12BA6
V5	Ratio Detector	12AL5
V6	AM Det. -AVC-AF Amp.	12AV6
V7	Output	35C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA OLSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150		AFH3-11-50	XC0105	FP311.65	TMT-3133	TVL-3442	
B	60	150							
C	60	150							
C2	5	25		PTT-25005	NLW5-50	TT25X5	ML5-25	TE-1202	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	5 10%		NPO-SI 5	D6-050	L10V5	CCD-050	GP550	10TS-V50
C4	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C5	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6								
C7	200		SI 200	D6-201	L10T2	CCD-201	GP320	10TS-T20
C8	15 5%		NPO-SI 15	TCZ-15	C10Q15C	*	CNO-415	10TCC-Q15
C9	30 N3300 10%							
C10								10TCP-Q10
C11	10 N150 5%							
C12								
C13	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C14	100	Note 1	SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C15	320 5%							
C16								
C17	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C18	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C19	50		SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C20	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C21	200		SI 200	D6-201	L10T2	CCD-202	GP320	10TS-T20
C22	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C23	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C24	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C25	100	Note 1	SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C26	.005 400V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-425	6TM-D50
C27	.005 400V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-425	6TM-D50
C28	.02 400V		P488N-02	DD-203	CUB4S2	4DP-2-203	GEM-412	4TM-S20
C29	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C30	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C31	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C32	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C33	.005 400V		P488N-005	D6-502	CUB6D5	6DP-1-502	GEM-425	6TM-D50
C34	100	Note 1	SI 100	D6-101	L10T2	CCD-101	GP310	10TS-T10
C35	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50

Note 1. Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA OLSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½		B-70-S				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	220K	
R3	1000Ω	
R4	22K	
R5	300Ω	
R6	220K	
R7	330Ω	
R8	47K	
R9	22K	
R10	2.2meg	
R11	4.7meg	
R12	220K	
R13	470K	
R14	150Ω	
R15	330Ω	
R16	470Ω 1W	
R17	100Ω 1W	
R18	22Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA OLSON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	FM Ant. Coil					
L2	FM RF Coil					
L3	FM Osc. Coil					
L4	1st FM IF Trans.					
L5	Loopstick					
L6	AM Osc. Coil					
L7	1st AM IF Trans.					
L8	2nd FM IF Trans.					
L9	2nd AM IF Trans.					
L10	Ratio Detector					
L11	Fil. Choke					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA OLSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2000Ω	6-8Ω						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA OLSON PART No.	QUAM PART No.	NOTES
SP1	4"	PM	6-8Ω		4A1Z8	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA OLSON PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.080A	*	1N1763 ♦	2F4 ♦	SR200 ♦	* Selenium Type ♦ Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	OLSON PART No.	NOTES
M2	Tuning Cap.		2 Gang
M3	Switch		Function (Rotary Type)

WIRING DATA

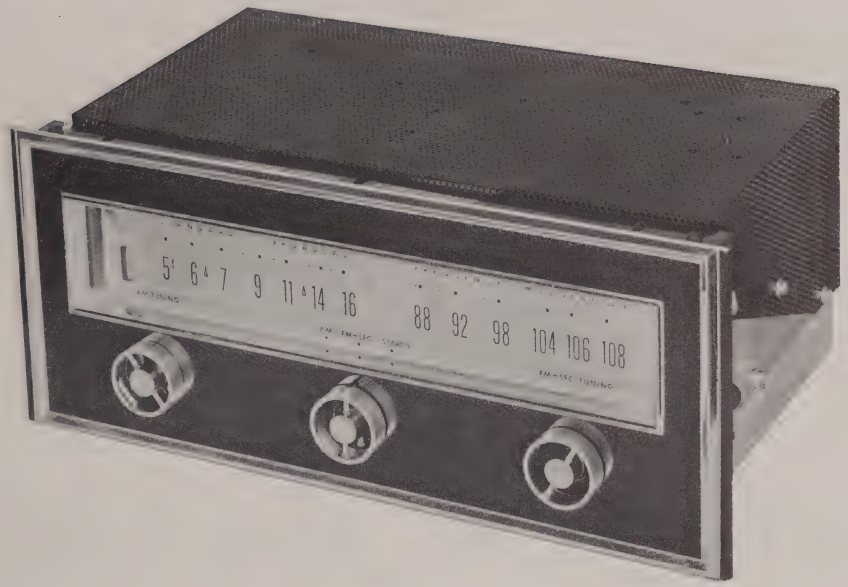
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

PHILCO
MODEL RT-400

PHILCO
MODEL RT-400



PHILCO
MODEL RT-400

TRADE NAME	Philco Model RT-400		
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.		
TYPE SET	AC Operated 10 Tube FM-AM Tuner		
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles	RATING	43 Watts, .44 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	540 — 1620KC	FREQ. MOD.	88 — 108MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KL326

AM ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:

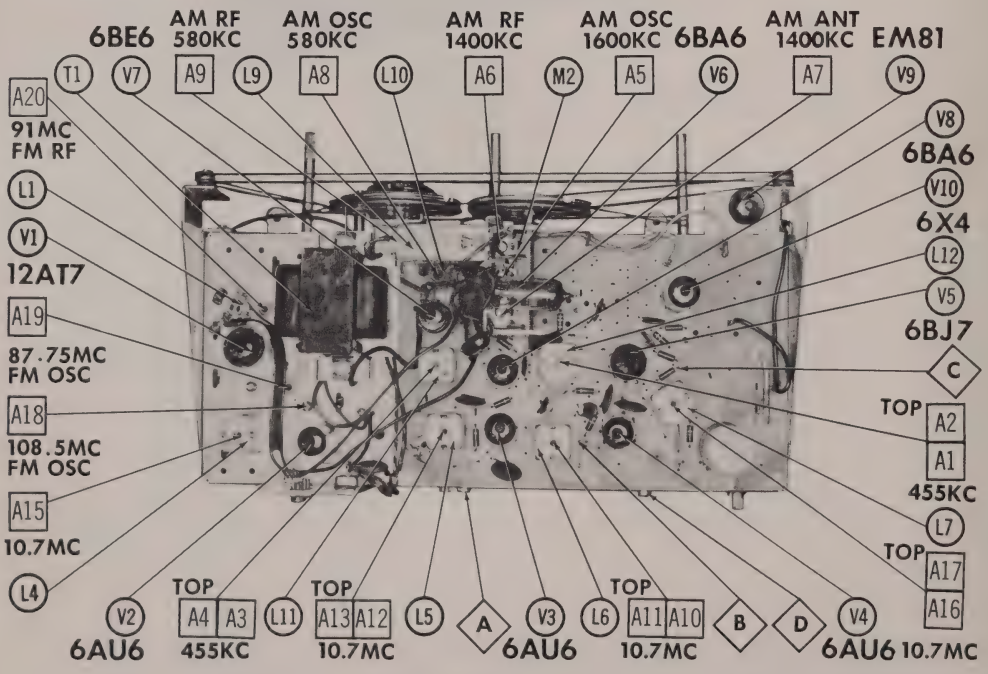
A1, Thru A4, A9..... GENERAL CEMENT #5097, 8727
WALSCO #2515

A5, A6, A7, A18..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

A8, A10 Thru A17, A19, A20
GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .05mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ AM Mod.)	(AM) Tuning gang fully open.	Vert. amp. to point (A). Low side to chassis.	A1, A2, A3, A4	Adjust for maximum amplitude.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum amplitude.
3.	"	1400KC	1400KC Signal.	"	A6, A7	"
4.	"	580KC	580KC Signal.	"	A8, A9	Adjust for maximum amplitude. Repeat steps 2 thru 4.



CHASSIS—TOP VIEW

FM ALIGNMENT INSTRUCTIONS

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM – SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side to pin 8 (cathode) of FM RF Amp. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
6.	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A16	"
7.	"	"	"	DC probe to point (D). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE–SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side to pin 8(cathode) of FM RF Amp. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp to point (B). Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. amp to point (C). Low side to chassis.	A16	"
7.	"	"	"	Vert. amp to point (D). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT–SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals with 270Ω in each lead.	108.5MC	(FM) Insert a .006" non-metalic shim between stator and rotor. Close gang on shim.	DC probe thru 1meg to point (B). Common to chassis.	A18	Adjust for maximum deflection.
9.	"	87.75MC	Tuning gang fully closed.	"	A19	"
10.	"	91MC	91MC	"	A20	"

FIG. 1

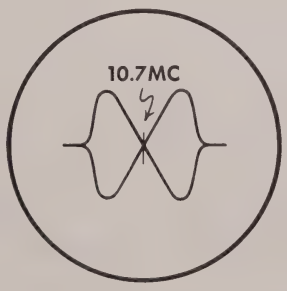
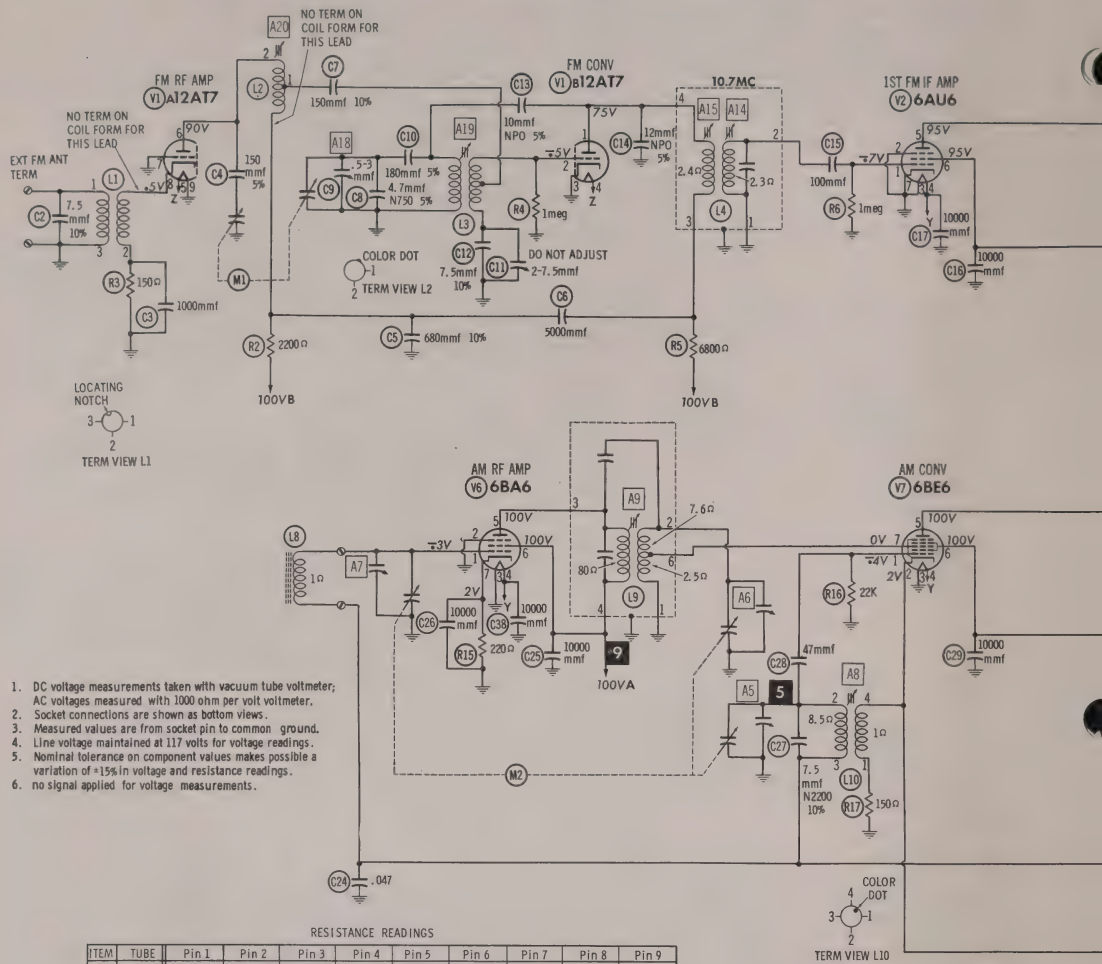


FIG. 2



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	†7600Ω	1meg	0Ω	.1Ω	.1Ω	†3000Ω	0Ω	150Ω	0Ω
V2	6AU6	1meg	0Ω	0Ω	.1Ω	†1000Ω	†1000Ω	0Ω		
V3	6AU6	0Ω	0Ω	.1Ω	0Ω	†1000Ω	†1000Ω	150Ω		
V4	6AU6	100K	0Ω	.1Ω	0Ω	†15K	†15K	0Ω		
V5	6BU7	44K	22K	0Ω	0Ω	.1Ω	520K	0Ω	22K	0Ω
V6	6BA6	2.6meg	0Ω	0Ω	.1Ω	†900Ω	†820Ω	220Ω		
V7	6BE6	22K	0Ω ▲150Ω	0Ω	.1Ω	†835Ω	†820Ω	2.5Ω		
V8	6BA6	2.6meg	0Ω	.1Ω	0Ω	†1000Ω	†820Ω	100Ω		
V9	EM81 6DA5	▲5.6meg 1.1meg	▲0Ω 600Ω	NC	.1Ω	0Ω	NC	†220K	NC	†0Ω
V10	6X4	160Ω	NC	.1Ω	0Ω	NC	150Ω	¶		

ALL MEASUREMENTS MADE IN STEREO POSITION UNLESS OTHERWISE DESIGNATED.
■ MEASURED IN "FM" POSITION. † MEASURED FROM PIN 7 OF V10.
▲ MEASURED IN "AM" POSITION. NC NO CONNECTION
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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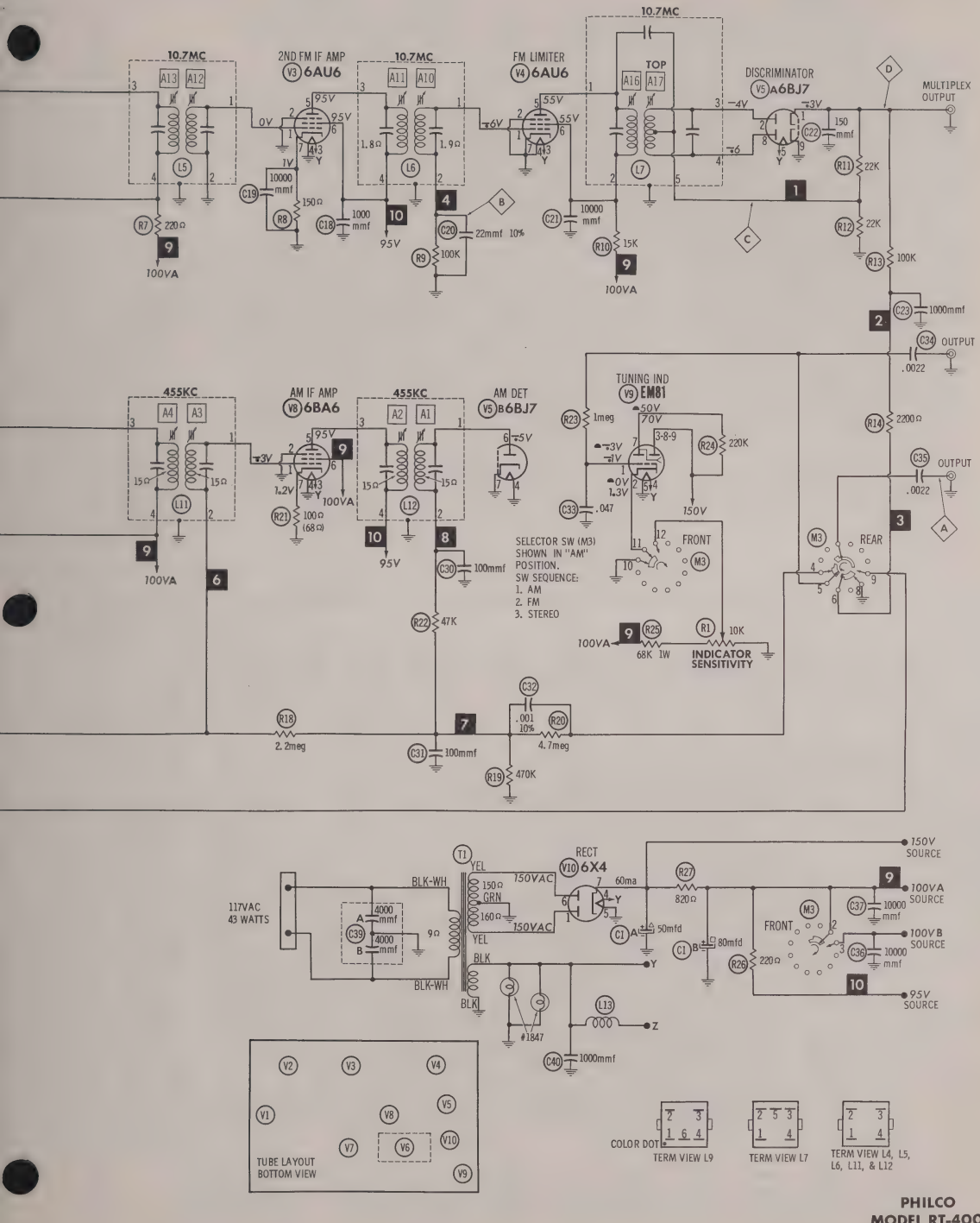
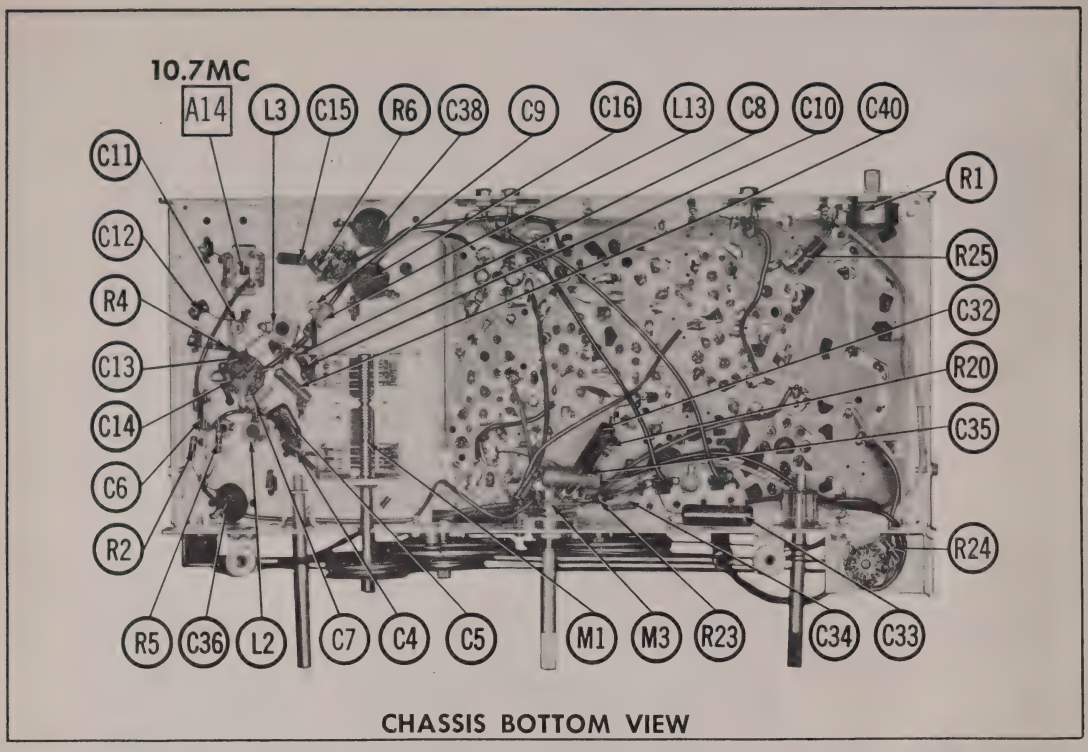
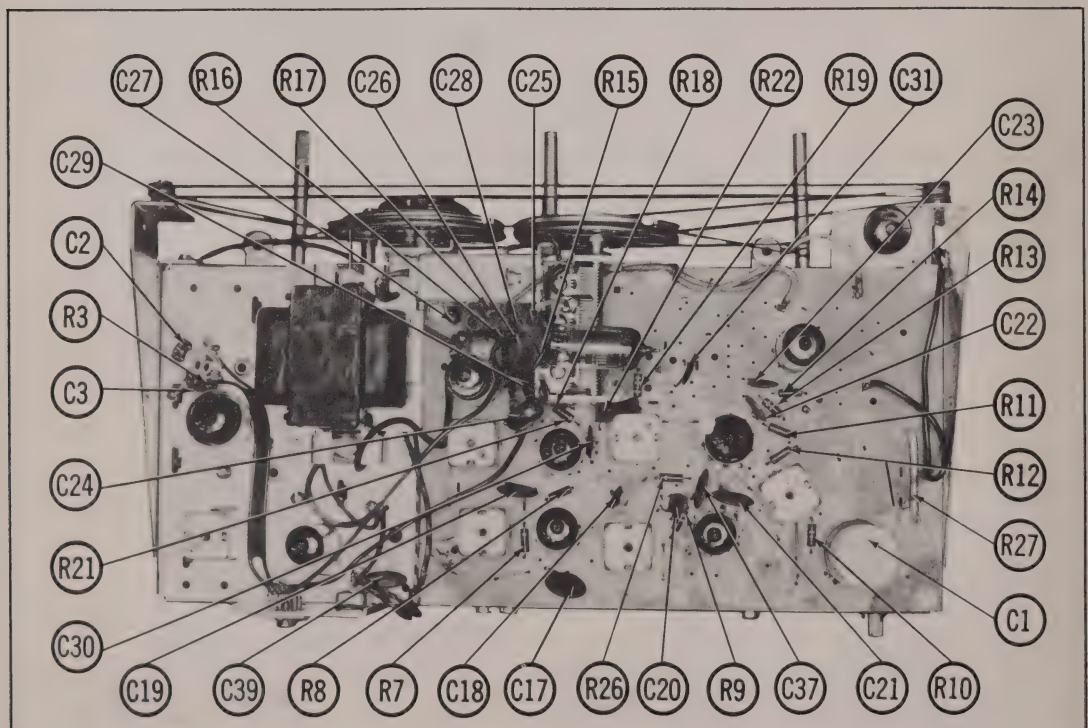
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.



PHILCO
MODEL RT-400



CHASSIS BOTTOM VIEW



CHASSIS-TOP VIEW -CAPACITOR AND RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	12AT7	V6	AM RF Amp.	6BA6
V2	1st FM IF Amp.	6AU6	V7	AM Conv.	6BE6
V3	2nd FM IF Amp.	6AU6	V8	AM IF Amp.	6BA6
V4	FM Limiter	6AU6	V9	Tuning Indicator	EM81/6DA5
V5	Disc. -AM Det.	6BJ7	V10	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲ 50	150	30-2585-12	PWH2-19-05	XB0181 ‡	PWP214.4	TMD-2140 †	PCL-2442	
B	■ 80	150							

‡ Use Printed Circuit Adaptors #55277 & 55278.
† Use Printed Circuit Adaptor kit TMA.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	7.5	#30-1257-16			C10V8C			
C3	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C4	150 5%		1469-00015	TCZ-150	22R5T15	CM-19B-151J	MCE-236	MS-315
C5	680 10%		1469-00068		5R5T68	CM-19B-681K	MCJ249 *	MS-368
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	150 10%		1469-00015	TCZ-150	22R5T15	CM-19B-151K	MCE236	MS-315
C8	4.7 N750 5%			TCN-5	C10V5U	CCTN-050	CN7-547	10TCU-V47
C9	.5-3			829-3		CV-1	CT565	
C10	180 5%		1469-00018	TCZ-180	22R5T18	CM-19B-181J	CNO-318	MS-318
C11	2-7.5	#31-6520-15		829-7				
C12	7.5 10%	#30-1257-16			C10V8C			
C13	10 NPO 5%		NPO-SI 10	TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C14	12 NPO 5%		NPO-SI 10	TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C15	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	22 10%		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	150		DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C23	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	.047 200V		F288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	7.5 N2200 10%	#30-1224-83				*		
C28	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C31	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C32	.001 400V 10%		V84C4D1-10%	DD-102	PM6D1	6DP-1-102	GEM-1621	6TM-D10
C33	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C34	.0022 200V		P288N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C35	.0022 200V		P288N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C39A	4000		BPD-2X004	DD-402)	BYC6DD4 (	CCD-392	B-240)	5HK-2D40
B	4000			DD-402)		CCD-392	B-240)	
C40	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10

Philco Part Number.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

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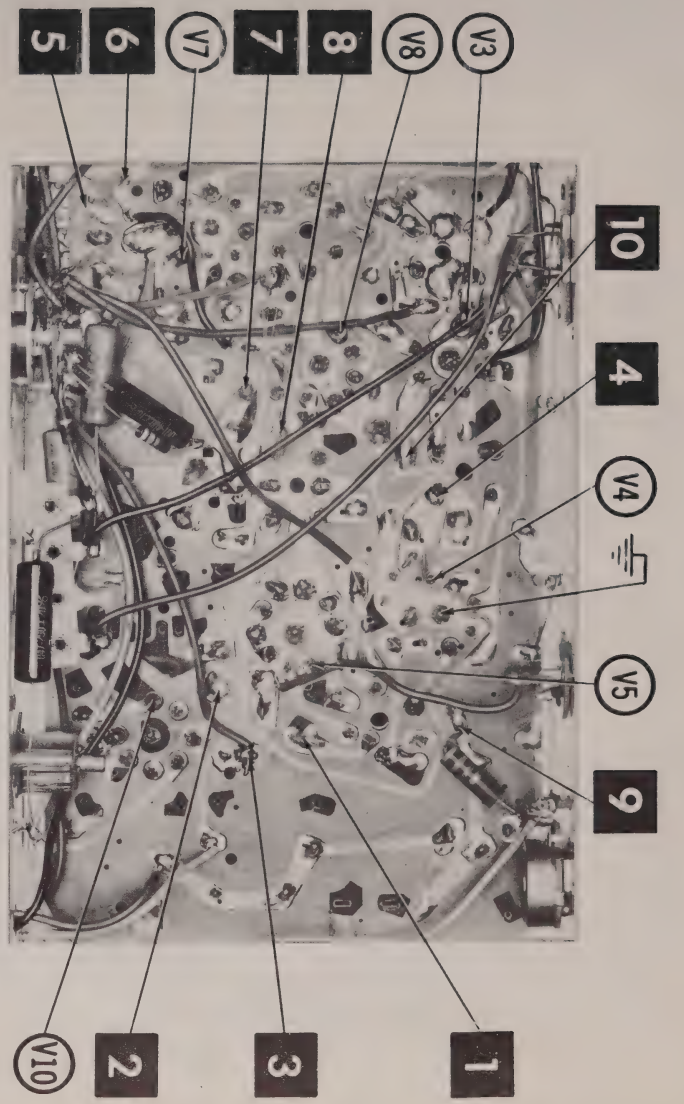


ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PHILCO MODEL RT-400

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B	5000Ω Shaft	½	33-5572-45	TT-10 Not Req.	B47-5000-S Not Req.	B11-114 TM4	PTA53L Not Req.	Indicator Sensitivity

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	2200Ω	
R3	150Ω	
R4	1meg	
R5	6800Ω	
R6	1meg	
R7	220Ω	
R8	150Ω	
R9	100K	
R10	15K	

ITEM No.	RATING	REMARKS
R11	22K	
R12	22K	
R13	100K	
R14	2200Ω	
R15	220Ω	
R16	22K	
R17	150Ω	
R18	2.2meg	
R19	470K	

ITEM No.	RATING	REMARKS
R20	4.7meg	
R21	100Ω	(68Ω)*
R22	47K	
R23	1meg	
R24	220K	
R25	68K 1W	
R26	220Ω	
R27	820Ω	Pt. #33-1334-22

Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Trans.	32-4718-2				
L2	FM RF Coil	32-4717-3				
L3	FM Osc. Coil	32-4716-1				
L4	1st FM IF Trans.	32-4715-1	FM-254	1463	RTC-8599	
L5	2nd FM IF Trans.	32-4712-1	FM-256	1463-PC	RTC-9046	
L6	3rd FM IF Trans.	32-4712-2	FM-256	1463-PC	RTC-9046	
L7	Discriminator	32-4714-3		1464-PC	RTC-9050	
L8	Loopstick	32-4692-10	BC-419	705-A		
L9	AM RF Trans.	32-4399-8				
L10	AM Osc. Coil	32-4693-9				
L11	1st AM IF Trans.	32-4583-17	BC-356	13-PC1	RTC-8641	
L12	2nd AM IF Trans.	32-4583-17	BC-357	13-PC2	RTC-8642	
L13	Fil. Choke(2.2uh)	32-4422-8	BC-563	4606	RTC-8517	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .44A	300 VCT @ .060A DC	6.3V@ 3.3A	32-8913-1					

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	Tuning Cap	31-2789-3	2 Gang, FM
M2	Tuning Cap	31-2787-7	2 Gang, AM
M3	Switch	42-2115-1	Function
	Printed Board	54-5474-3	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

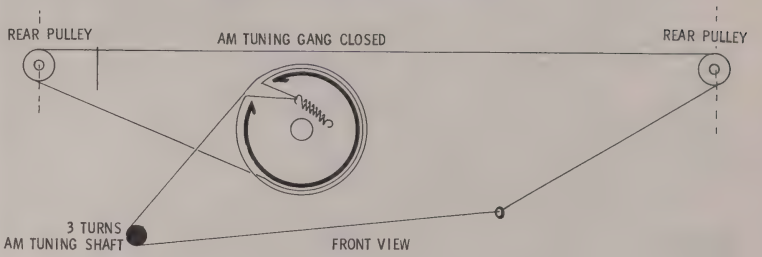
NAME	PART NO.	DESCRIPTION
Dial Pointer	28-9739-10	AM, FM
Knob	28-11588-1	Tuning
Knob	28-11588-4	Function Selector

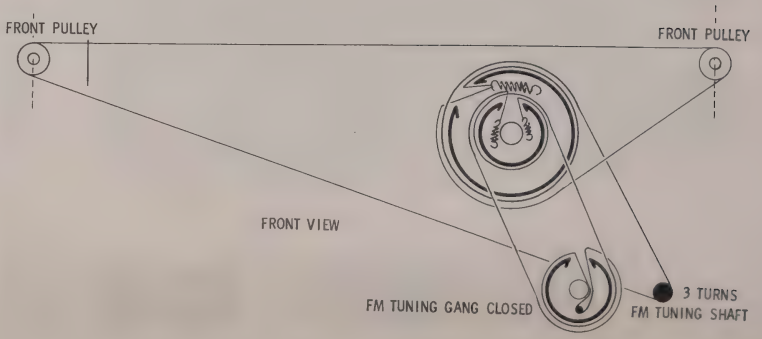
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

DIAL CORD STRINGING





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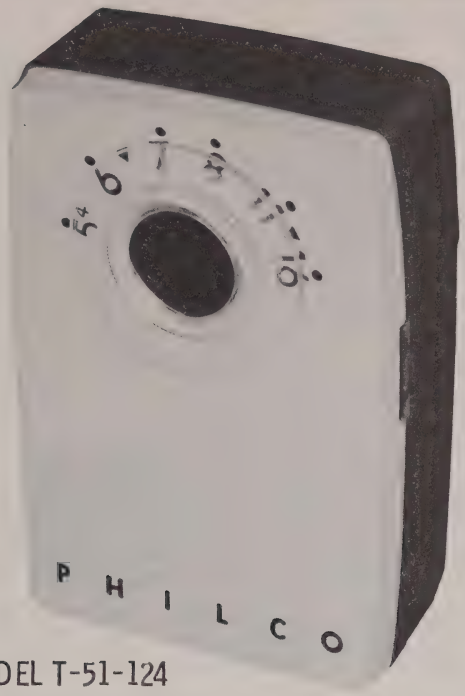
PHILCO
MODEL T-50-126, T-51-124

PHILCO
MODEL T-50-126, T-51-124



MODEL T-51-124

TRADE NAME	Philco Models T-50-126, T-51-124
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	5.2 Volts
RATING	9MA @ 5.2 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 — 1620KC
	16MA @ 5.2 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2... GENERAL CEMENT #8607, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537
A3, A4... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice Coil.	A1, A2	Adjust for maximum output.
2.	Loop	1620KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1400KC	1400KC	"	A4	"
4.	"	600KC	600KC	"	A5	Adjust for maximum output while rocking tuning gang. Repeat step 2, 3 and 4, making step 2 the last step.

PHILCO
MODEL T-50-126, T-51-124

SET 519 FOLDER 11

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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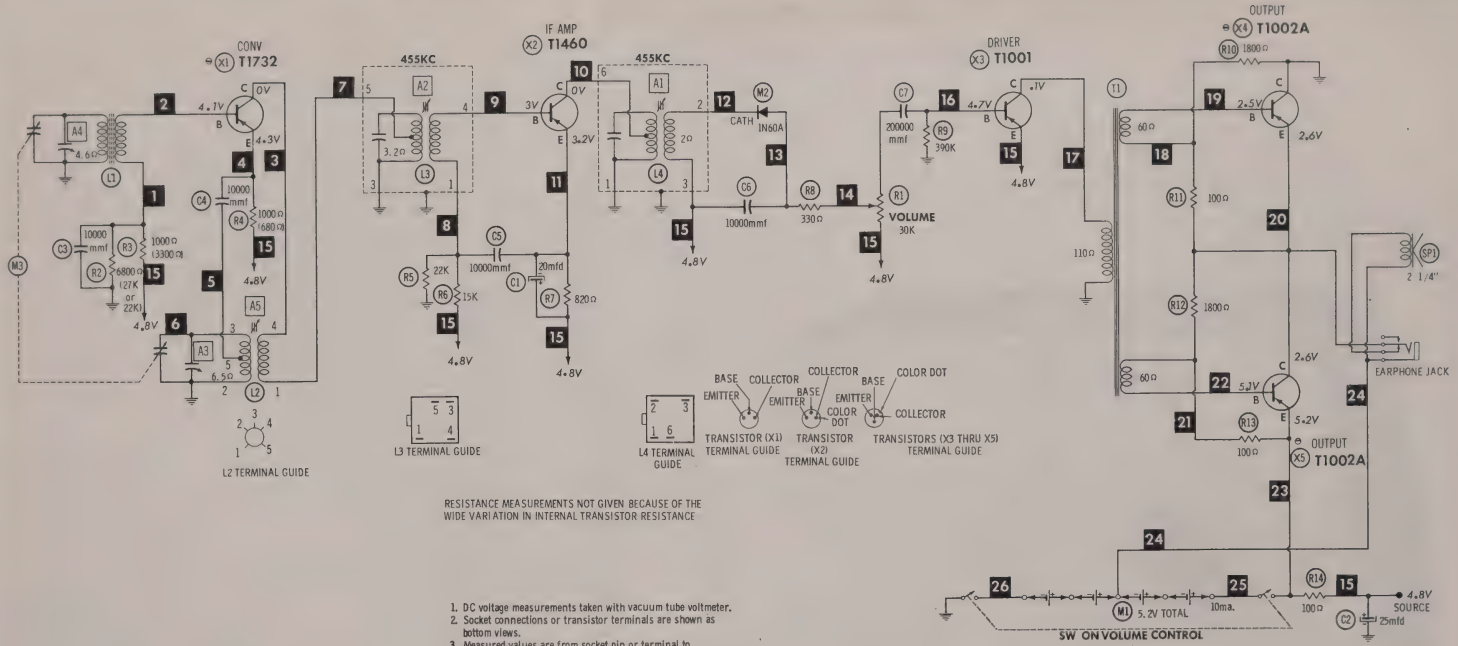

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

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PHILCO
MODEL T-50-126, T-51-124

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	T1732 *	Converter				PNP
X2	T1460	IF Amplifier				PNP
X3	T1001	Driver	2N406	2N362	2N406	PNP
X4	T1002A †	Output	2N408			PNP
X5	T1002A †	Output	2N408			PNP

* Alternate Part #T1731.
† Alternate Part #T1549.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	20	6	30-2588-1	PTT6020	NLW20-6	TT15X20	MLV20-12	TE-1090	
C2	25	6	30-2599-36	BCD6025	ECPB111	PET1570		VL-1090	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	10000		C80V-103AM	DM-103	H-05S1		TA-110	TG-S10
C4	10000		C80V-103AM	DM-103	H-05S1		TA-110	TG-S10
C5	10000		C80V-103AM	DM-103	H-05S1		TA-110	TG-S10
C6	10000		C80V-103AM	DM-103	H-05S1		TA-110	TG-S10
C7	200000 10V	#30-1279-3		UK10-204				

Philco Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	30K	1/4	33-5583-10					Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	6800Ω	Note 1
R3	1000Ω	(3300Ω) †
R4	1000Ω	(680Ω) †
R5	22K	
R6	15K	

ITEM No.	RATING	REMARKS
R7	820Ω	
R8	330Ω	
R9	390K	
R10	1800Ω	
R11	100Ω	

ITEM No.	RATING	REMARKS
R12	1800Ω	
R13	100Ω	
R14	100Ω	

Note 1. Some versions may use 22K or 27K.
† Alternate Value.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	76-10982				
L2	Osc. Coil	32-4669-6				
L3	Input IF Trans.	32-4775-4				
L4	Output IF Trans.	32-4775-5				

PRINTED BOARD

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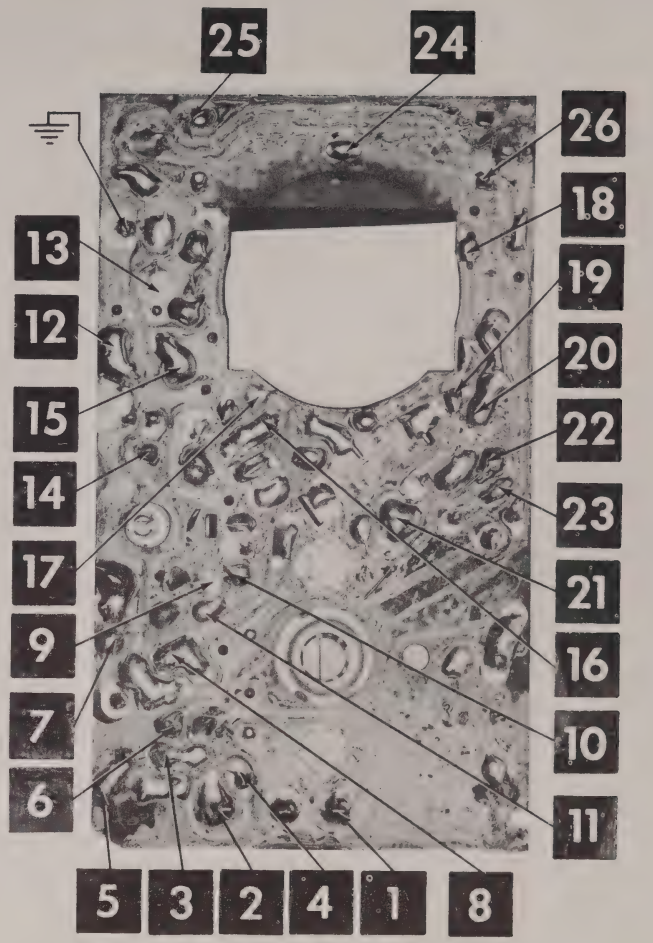


PHILCO
MODEL T-50-126, T-51-124

FOLDER 11

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	1.5	1	32-8911-1					
		SEC. 2						
		1						

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	QUAM PART No.	NOTES
SP1	2 1/4"	PM	90-100Ω	36-1684-1	22A06Z100	

BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA BURGESS "A"	BURGESS "B"	EVEREADY "A"	EVEREADY "B"	MALLORY "A"	MALLORY "B"	NOTES
M1	1.3V	P640 *				E640 *		RM-640R*	* 4 Required

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA PHILCO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M2	1N60A	34-8022-3		1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Tuning Cap. Printed Board	31-2788-3 54-6968	2 Gang

CABINETS & CABINET PARTS

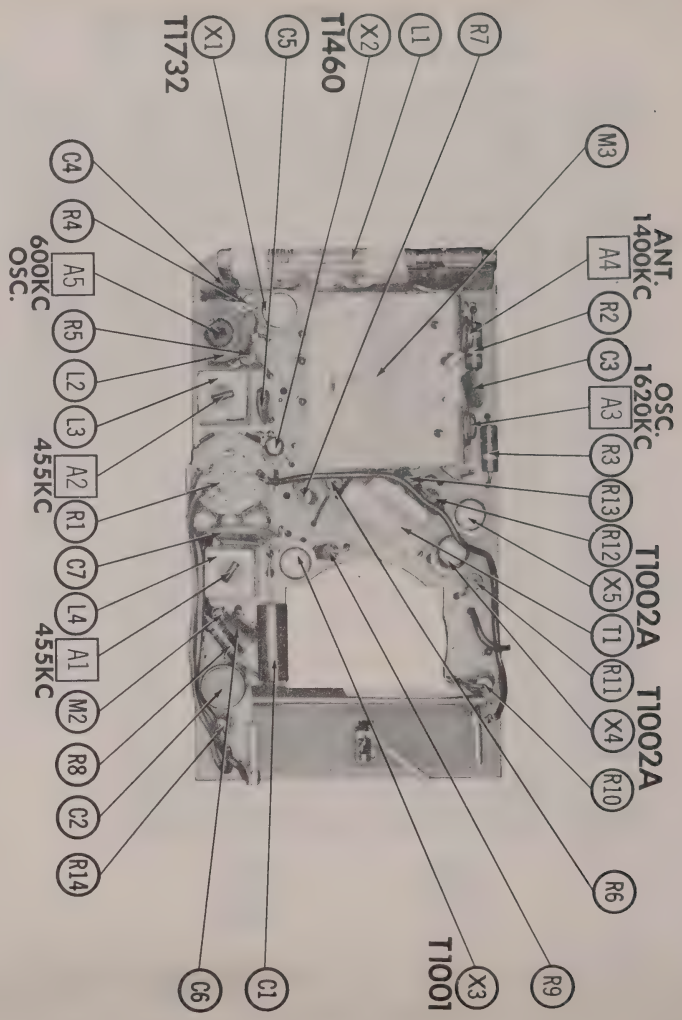
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	54-6959	Tuning, Model T50-126
Knob	54-6959-4	Tuning, Model T51-124
Knob	54-6958	Volume
Cabinet Back	54-6956	Model T50-126
Cabinet Back	54-6956-1	Model T51-124
Cabinet Front	54-6955	Aqua, Model T50-126
Cabinet Front	54-6955-1	Terra Cotta, Model T50-126
Cabinet Front	54-6955-2	Model T51-124

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



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REALISTIC MODEL STEREODYNE/40

REALISTIC MODEL
STEREODYNE/40

REALISTIC MODEL
STEREODYNE/40

TRADE NAME	Realistic Model Stereodyne/40
SUPPLIER	Radio Shack Corp., 730 Commonwealth Ave., Boston 17, Mass.
TYPE SET	AC Operated 10 Tube Stereo Amplifier
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 130 Watts, 1.2 Amp. @117 Volts AC

SET 519 FOLDER 12

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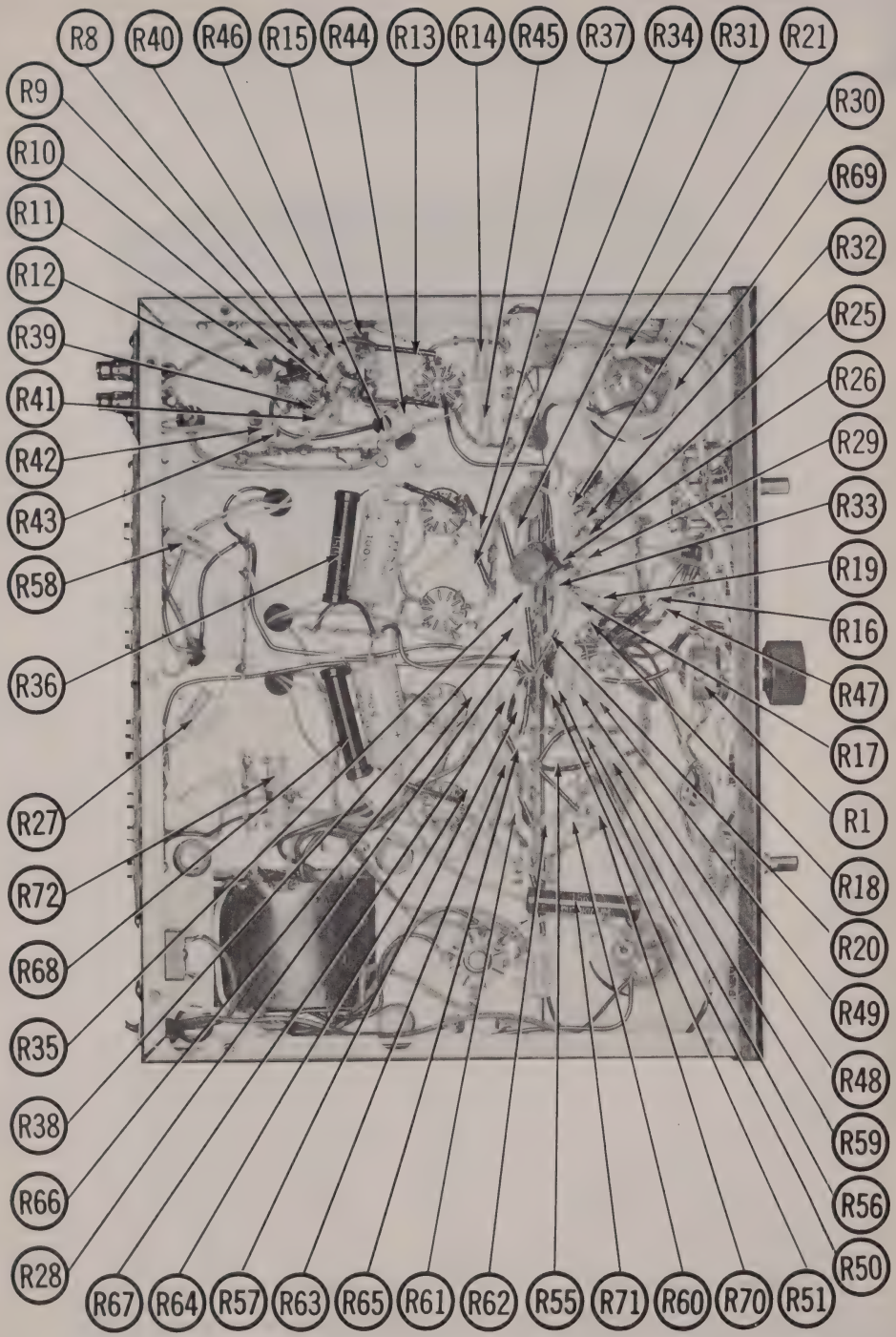
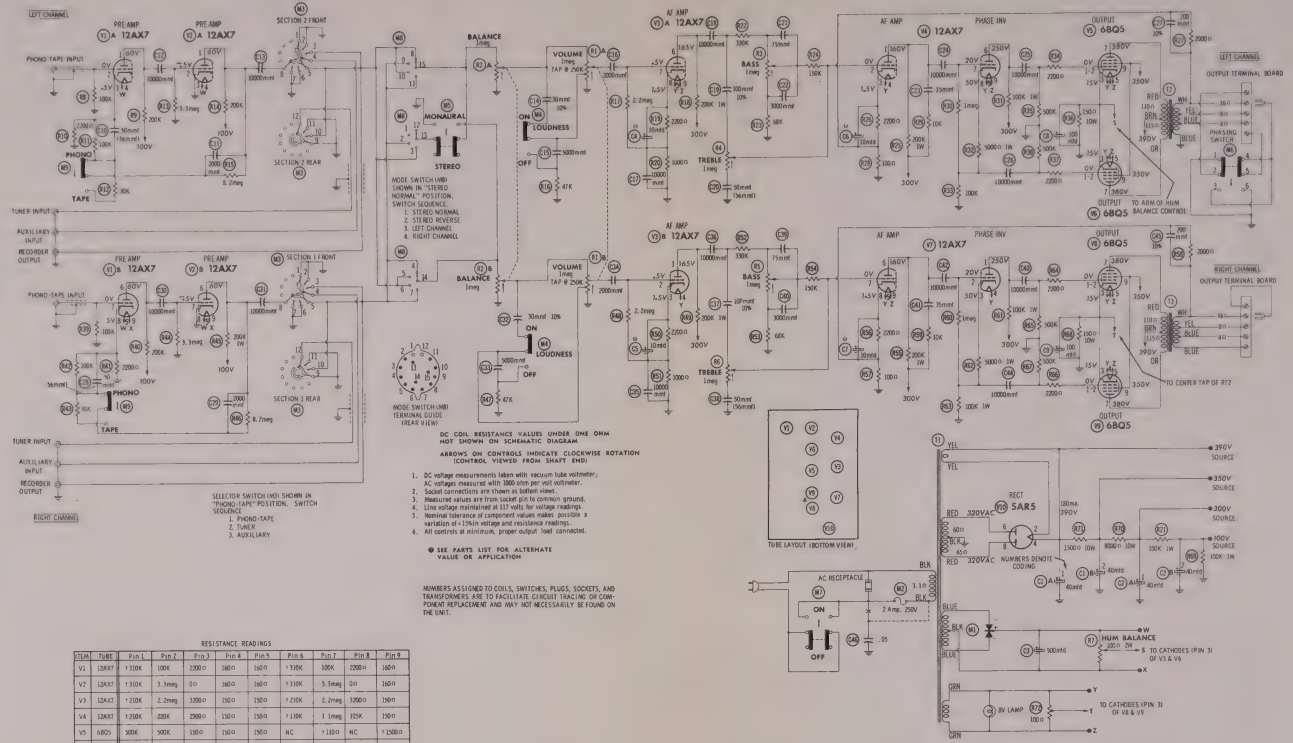


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION


LEFT CHANNEL
PRE AMP V1A 12AX7
PRE AMP V2A 12AX7
SECTION 2 FRONT
PHONO TAPE INPUT
SECTION 2 REAR
TAPE
PHONO
TUNER INPUT
AUXILIARY INPUT
RECORDER OUTPUT
BALANCE 1meg
MONAURAL
STEREO
MODE SWITCH (MB) SHOWN IN "STEREO NORMAL" POSITION. SWITCH SEQUENCE:
1. STEREO NORMAL
2. STEREO REVERSE
3. LEFT CHANNEL
4. RIGHT CHANNEL
VOLUME 1meg TAP @ 250K
LOUDNESS
ON
OFF
AF AMP V3A 12AX7
TREBLE 1meg
BASS 1meg
AF AMP V4 12AX7
PHASE INV
OUTPUT V5 6BQ5
LEFT CHANNEL OUTPUT TERMINAL BOARD
PHASING SWITCH
OUTPUT TO ARM OF HUM BALANCE CONTROL
PRE AMP V1B 12AX7
PRE AMP V2B 12AX7
SECTION 1 FRONT
SECTION 1 REAR
AF AMP V3B 12AX7
AF AMP V7 12AX7
OUTPUT V8 6BQ5
RIGHT CHANNEL OUTPUT TERMINAL BOARD
TO CENTER TAP OF R72
RIGHT CHANNEL
SELECTOR SWITCH (MD) SHOWN IN "PHONO-TAPE" POSITION. SWITCH SEQUENCE
1. PHONO-TAPE
2. TUNER
3. AUXILIARY
MODE SWITCH (MB) TERMINAL GUIDE (REAR VIEW)
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
TUBE LAYOUT (BOTTOM VIEW)
AC RECEPTACLE
ON
OFF
2 Amp. 250V
RECT V10 5AR5
320VAC
NUMBERS DENOTE CODING
HUM BALANCE
TO CATHODES (PIN 3) OF V5 & V9
TO CATHODES (PIN 3) OF V8 & V9
8V LAMP
390V SOURCE
350V SOURCE
300V SOURCE
100V SOURCE

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†310K	100K	2200Ω	160Ω	160Ω	†310K	100K	2200Ω	160Ω
V2	12AX7	†310K	3.3meg	0Ω	160Ω	160Ω	†310K	3.3meg	0Ω	160Ω
V3	12AX7	†210K	2.2meg	3200Ω	150Ω	150Ω	†210K	2.2meg	3200Ω	150Ω
V4	12AX7	†210K	220K	2500Ω	150Ω	150Ω	†110K	1 1meg	105K	150Ω
V5	6BQ5	500K	500K	150Ω	150Ω	150Ω	NC	†110Ω	NC	†1500Ω
V6	6BQ5	500K	500K	150Ω	150Ω	150Ω	NC	†115Ω	NC	†1500Ω
V7	12AX7	†110K	1.1meg	105K	150Ω	150Ω	†210K	220K	2500Ω	150Ω
V8	6BQ5	500K	500K	150Ω	150Ω	150Ω	NC	†110Ω	NC	†1500Ω
V9	6BQ5	500K	500K	150Ω	150Ω	150Ω	NC	†115Ω	NC	†1500Ω
V10	5AR4	NC	¶	NC	65Ω	NC	65Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V10.
NC NO CONNECTION.

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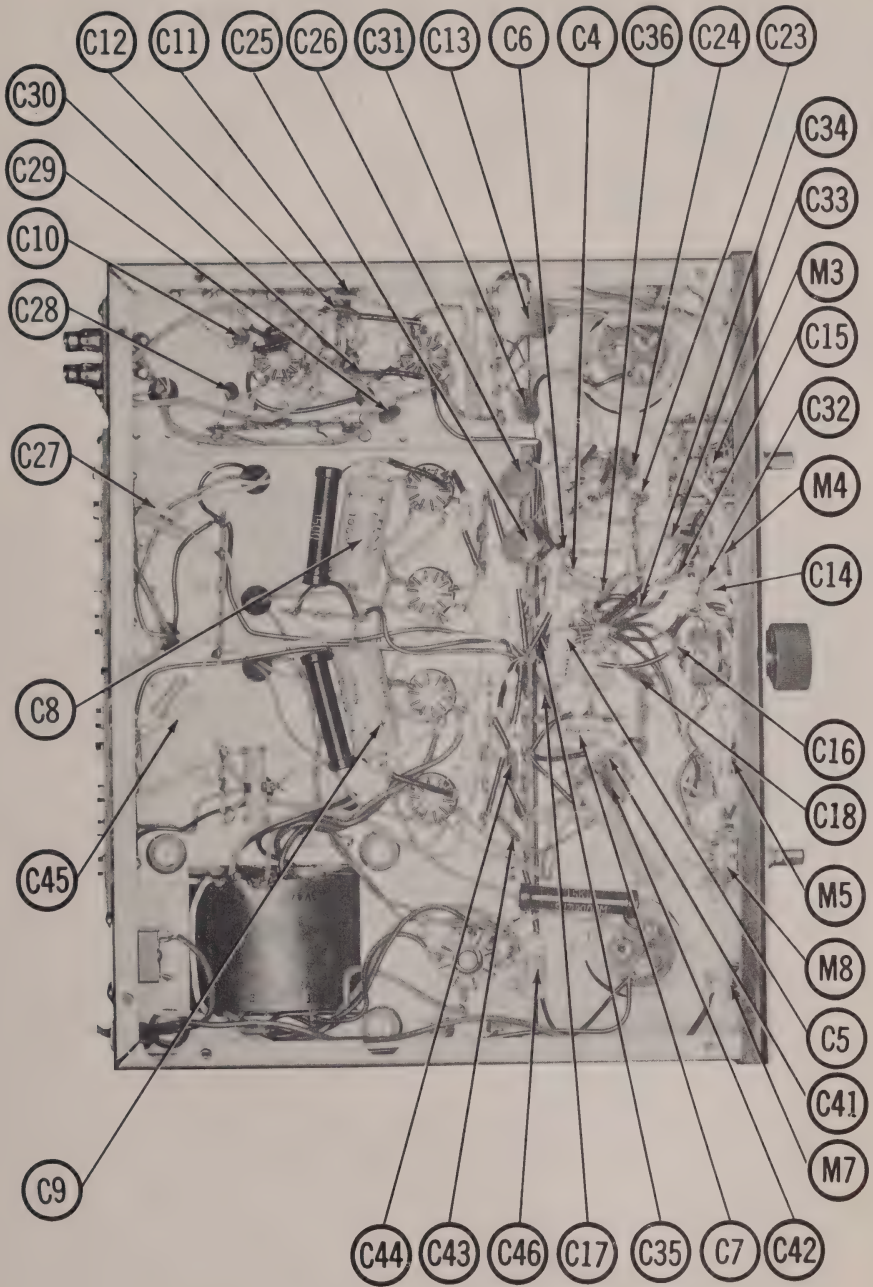
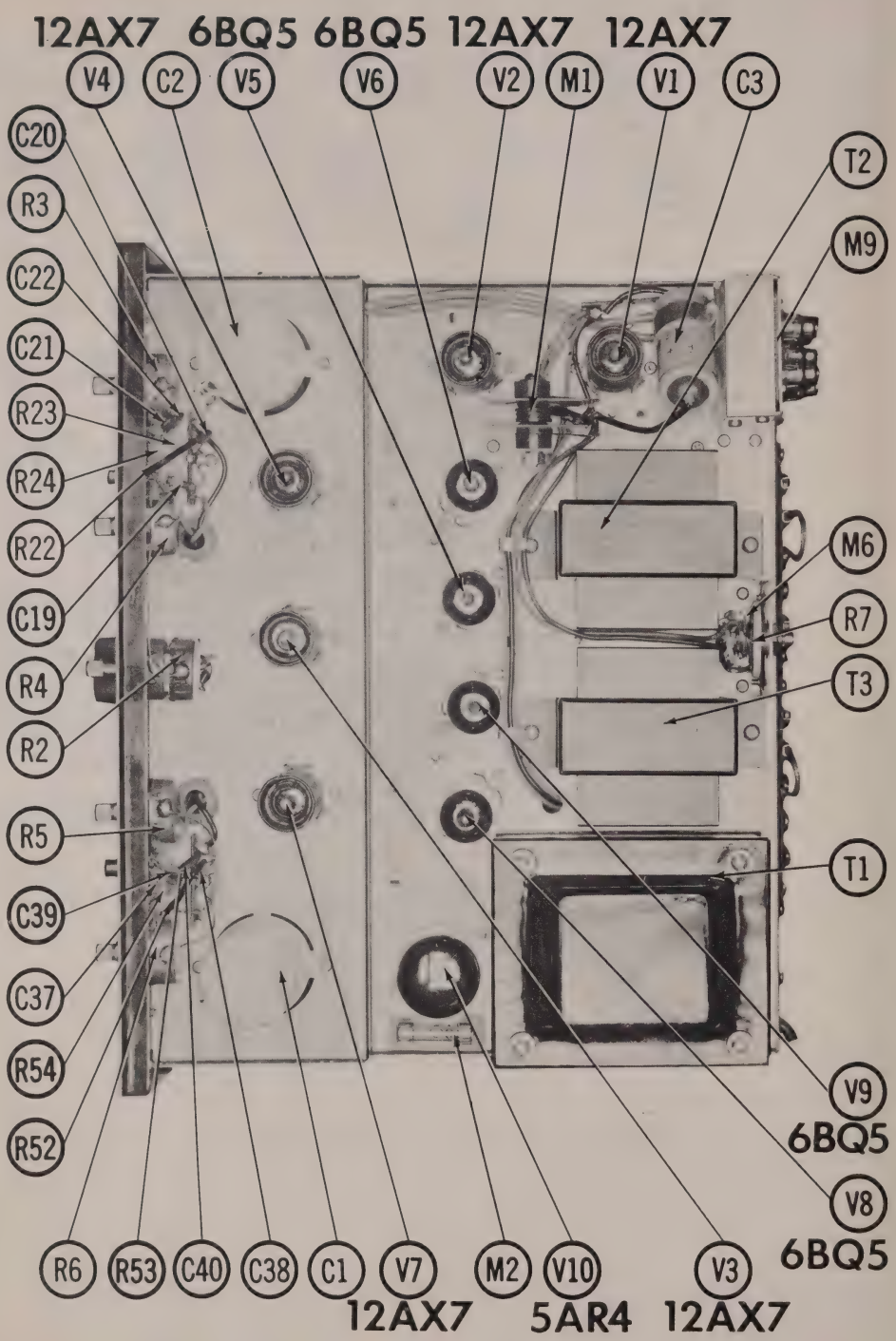
REALISTIC MODEL STEREODYNE/40



CHASSIS BOTTOM VIEW – CAPACITOR & MISC. IDENT.

SET 519 FOLDER 12



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Left Channel Preamp. - Right Channel Preamp.	12AX7
V2	Left Channel Preamp. - Right Channel Preamp.	12AX7
V3	Left Channel AF Amp. - Right Channel AF Amp.	12AX7
V4	Left Channel AF Amp. - Left Channel Phase Inv.	12AX7
V5	Left Channel Output	6BQ5 (EL84/6BQ5) *
V6	Left Channel Output	6BQ5 (EL84/6BQ5) *
V7	Right Channel AF Amp. - Right Channel Phase Inv.	12AX7
V8	Right Channel Output	6BQ5 (EL84/6BQ5) *
V9	Right Channel Output	6BQ5 (EL84/6BQ5) *
V10	Rectifier	5AR4 (GZ34/5AR4) *

GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA REALISTIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	450		AFH2-57	B0450	FP238	TMD-54	TVL-2764	
B	40	450							
C2A	40	450		AFH2-57	B0450	FP238	TMD-54	TVL-2764	
B	40	450							
C3	500	10		PRS1170	BR5001	TC1505	TD-500-15	TVA-1162	
C4	10	25		XPP-25010	NLW10-25	TC22	ML10-25	TE-1204	①
C5	10	25		XPP-25010	NLW10-25	TC22	ML10-25	TE-1204	①
C6	10	25		XPP-25010	NLW10-25	TC22	ML10-25	TE-1204	①
C7	10	25		XPP-25010	NLW10-25	TC22	ML10-25	TE-1204	①
C8	100	50		PRS1360	BR5001	TC3501	TD-100-50	TVA-1310	
C9	100	50		PRS1360	BR5001	TC3501	TD-100-50	TVA-1310	

① Some versions may use 8mfd in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	50	(56) †	DI-50	DD-500	L10Q5	CCD-500	GP450	10TS-Q50
C11	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C12	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	30 10%		NPO-SI 30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C15	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	100 10%		NPO-SI 100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C20	50	(56) †	DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C21	75		DI-82	DD-750	L10Q75	CCD-750	GP475	10TS-Q75
C22	3000		BPD-0033	DD-302	BYA10D3	CCD-302	B-230	5HK-D30
C23	35		NPO-DI 36	TCZ-36	C10Q36C	CCTO-360	GP439	10TS-439
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C28	50	(56) †	DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C29	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C32	30 10%		NPO-SI 30	DD-300	L10Q3	CCD-300	GP430	10TS-Q30
C33	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C34	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C35	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C37	100 10%		NPO-SI 100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C38	50	(56) †	DI-50	DD-500	L10Q50	CCD-500	GP450	10TS-Q50
C39	75		DI-82	DD-750	L10Q75	CCD-750	GP475	10TS-Q75
C40	3000		BPD-0033	DD-302	BYA10D3	CCD-302	B-230	5HK-D30
C41	35		NPO-DI 36	TCZ-36	C10Q36C	CCTO-360	GP439	10TS-Q39
C42	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C45	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C46	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5

† Alternate Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA REALISTIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½						Volume, Right Channel
	250K Tap							
B	1meg	½						Volume, Left Channel
	250K Tap							
R2A	1meg	½-½		AB-744				Balance, Left Channel
B	1meg			SR-68				Balance, Right Channel
C	Shaft			AK-29				
R3A	1meg	½		AB-69				Bass, Left Channel
B	Shaft			AK-29				
R4A	1meg	½		AB-69				Treble, Left Channel
B	Shaft			AK-29				
R5A	1meg	½		AB-69				Bass, Right Channel
B	Shaft			AK-29				
R6A	1meg	½		AB-69				Treble, Right Channel
B	Shaft			AK-29				
R7A	100Ω	2(WW)		WN-101	A43-100	W11-084	R100L	Hum Balance
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R8	100K	
R9	200K	
R10	2200Ω	
R11	100K	
R12	30K	
R13	3.3meg	
R14	200K	
R15	8.2meg	
R16	47K	
R17	2.2meg	
R18	200K 1W	
R19	2200Ω	
R20	1000Ω	
R21	100K 1W	
R22	330K	
R23	68K	
R24	150K	
R25	200K 1W	
R26	2200Ω	
R27	2000Ω	
R28	100Ω	
R29	10K	

ITEM No.	RATING	REMARKS
R30	1meg	
R31	100K 1W	
R32	5000Ω 1W	
R33	100K	
R34	2200Ω	
R35	500K	
R36	150Ω 10W	IRC#PW10-150Ω
R37	2200Ω	
R38	500K	
R39	100K	
R40	200K	
R41	2200Ω	
R42	100K	
R43	3.3meg	
R44	68K	
R45	200K 1W	
R46	8.2meg	
R47	47K	
R48	2.2meg	
R49	200K 1W	
R50	2200Ω	
R51	1000Ω	

ITEM No.	RATING	REMARKS
R52	330K	
R53	68K	
R54	150K	
R55	200K 1W	
R56	2200Ω	
R57	100Ω	
R58	2000Ω	
R59	10K	
R60	1meg	
R61	100K 1W	
R62	5000Ω 1W	
R63	100K 1W	
R64	2200Ω	
R65	500K	
R66	2200Ω	
R67	500K	
R68	150Ω 10W	IRC#PW10-150Ω
R69	100K 1W	
R70	8000Ω 10W	IRC#PW10-8K
R71	1500Ω 10W	IRC#PW10-1500Ω
R72	100Ω	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ 1.2A	640VCT @ .180A	5V @ 1.9A						
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 4A	12VCT @ .600A							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	7500Ω CT	16Ω Tap @ 8Ω, 4Ω						
T3	7500Ω CT	16Ω Tap @ 8Ω, 4Ω						

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	REALISTIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.600A	*				* Selenium Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			REALISTIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		2A 250V			312002 * (3AG 2A 250V)	357001	AGC 2 *	4405

* Use holders specified.

MISCELLANEOUS

ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M3	Switch		Function Selector (Rotary Type)
M4	Switch		Loudness Off-On (DPDT, Slide Type)
M5	Switch		Monaural Stereo (DPDT, Slide Type)
M6	Switch		Speaker Phase (DPDT, Slide Type)
M7	Switch		Power Off-On (DPDT, Slide Type)
M8	Switch		Stereo-Reverse (Rotary Type)
M9	Switch		Phono-Tape (DPDT, Slide Type)

WIRING DATA

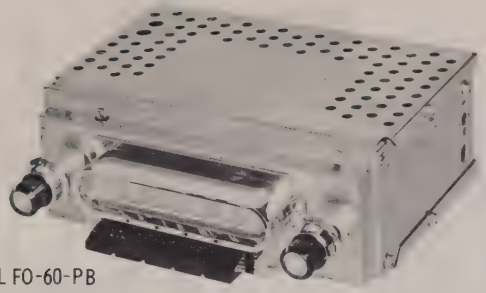
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

STROMBERG-CARLSON MODELS CH-60M, CH-60-PB, DA-60-PB, DE-60-PB, DO-60-PB, FA-60-M, FA-60-PB, FO-60-M, FO-60-PB

STROMBERG-CARLSON MODELS CH-60M, CH-60-PB, DA-60-PB, DE-60-PB, DO-60-PB, FA-60-M, FA-60-PB, FO-60-M, FO-60-PB



MODEL FO-60-PB

TRADE NAME	Stromberg Carlson Models	CH-60-M, CH-60-PB (For 1960 Chevrolets) DA-60-PB (For 1960 Dodge Darts) DE-60-PB (For 1960 De Sotos DO-60-PB (For 1960 Dodges) FA-60-M, FA-60-PB (For 1960 Falcons) FO-60-M, FO-60-PB (For 1960 Fords)
MANUFACTURER	Stromberg-Carlson Co., A Div. of General Dynamics Corp., Commercial Products Div., 1400 N. Goodman Street, Rochester 9, N. Y.	
TYPE SET	Battery Operated 4 Tube, 2 Transistor Custom Built Automobile AM Receiver	
POWER SUPPLY	12 Volt Storage Battery RATING 1.5 Amp. @12.6 Volts DC	
TUNING RANGE—BROADCAST	540 - 1600KC	

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A7, A8, A9....GENERAL CEMENT #9050-L, 9150
WALSCO #2521, 2524

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	262.5KC (400∿ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Thru Dummy (Fig. 1) to antenna receptacle.	1605KC for Pushbutton Model. 1610KC for manual.	"	"	A5, A6	"
3.	(Pushbutton models only). Thru dummy (Fig. 1) to antenna receptacle.	1200KC	Tuner carriage 9/32" from high end stop.	"	A7, A8, A9	Pushbutton models only. Adjust for maximum output.
4.	(Manual models only). Thru dummy to antenna receptacle.	1130KC	Tuning knob exactly 2 full turns from high end stop.	"	A7, A8, A9	Manual models only. Adjust for maximum output.
5.	Thru dummy to antenna receptacle.	1200KC	1200KC	"	A10	Adjust for maximum output.

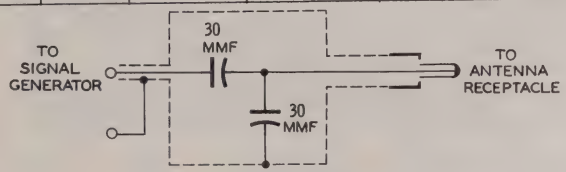


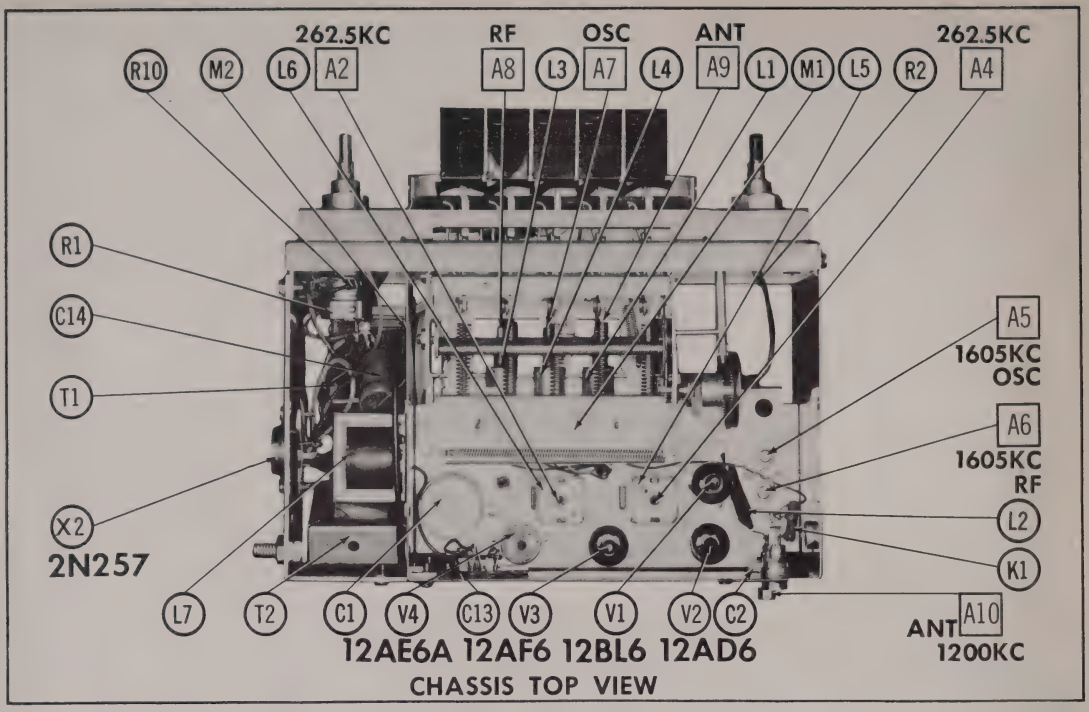
FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

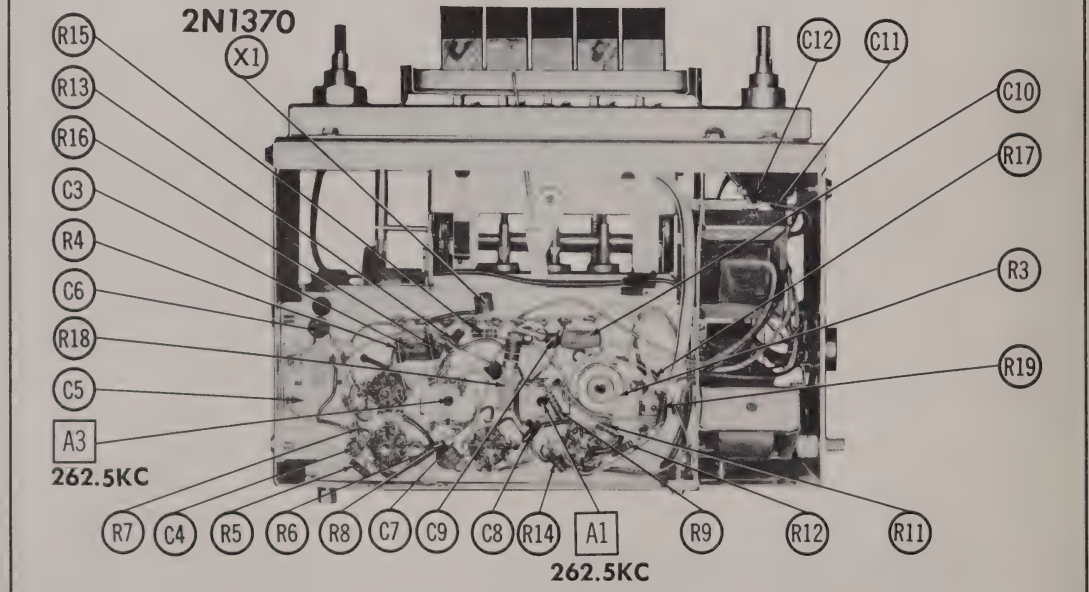
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KD254

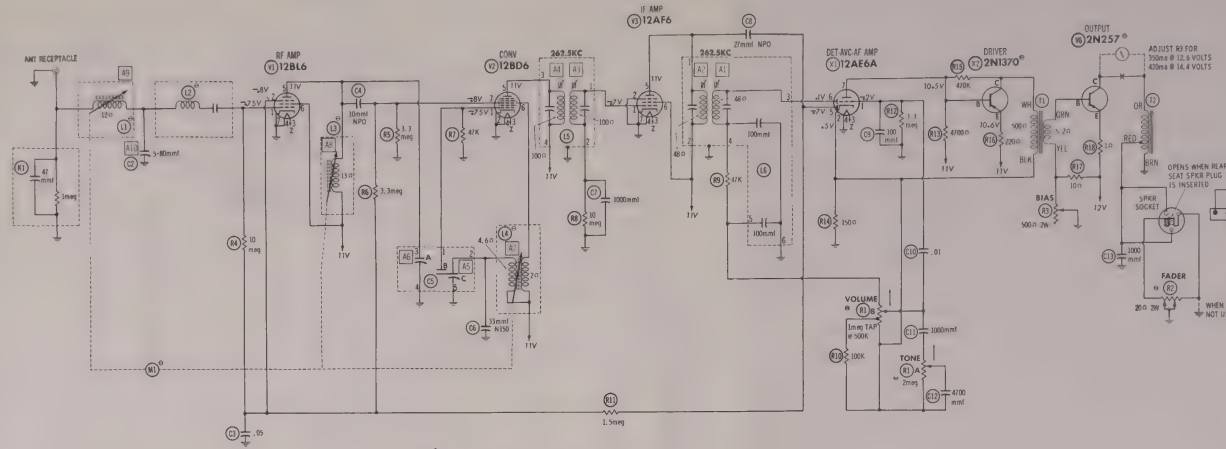
SET 519 FOLDER 13

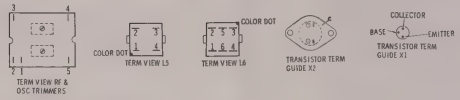


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW

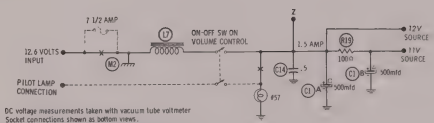




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	1Meg	1meg	.1Ω	0Ω	115Ω	100Ω	0Ω
V2	12AD6	47K	0Ω	.1Ω	0Ω	200Ω	100Ω	3.3meg
V3	12AF6	10meg	0Ω	.1Ω	0Ω	150Ω	100Ω	0Ω
V4	12AE6A	3.3meg	150Ω	.1Ω	0Ω	8.1meg	800K	450Ω

TRANSISTOR CIRCUIT RESISTANCE FOR X1 AND X2 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.



1. DC voltage measurements taken with vacuum tube voltmeter
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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STROMBERG-CARLSON MODELS CH-60M, CH-60-PB, DA-60-PB, DE-60-PB, DO-60-PB, FA-60-M, FA-60-PB, FO-60-M, FO-60-PB

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆		RAYTHEON ◆	SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BL6	V3	IF Amplifier	12AF6
V2	Converter	12AD6	V4	Det. -AVC-AF Amp.	12AE6A

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N1370 *	Driver	2N591	2N362		PNP
X2	2N257	Output			2N155	PNP Note 1

* Alternate Type 2N362, 2N591.

Note 1. When replacing, apply silicone grease (General Cement #8101, or equivalent) to both sides of insulator. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Stromberg-Carlson PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■500	16	111000-080	AFH3-00-95	B0043	WP200.6		TVLS-2157 *	
B	▲500	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	5-80	#110000-013				462		
C3	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C4	10 NPO		NPO-DI 10	DTZ-10	C10QIC	CCTO-100	CNO-410	10TCC-Q10
C5A								
B		#110000-012						
C								
C6	33 N150					*		10TCP-Q33
C7	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	.27 NPO		NPO-DI 25	TCZ-27	C10Q27C	CCTO-270	CNO-427	10TCC-Q27
C9	100		BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C10	.01 200V		P288N-01	DD-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C11	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C12	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C13	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C14	.5 50V		P288N-5		CUB2P5	IDP-4-504	GEM-205	2TM-P50

Stromberg-Carlson Part Number.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Stromberg-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	1/2	145000-088	F1-67		† QJ-1298A	■ UE4159S	Tone, Note 1
B	1meg	1/2		R2-60				Volume, Note 1
	500K Tap							
C	Switch			KR-7				Power Off-On
R2	20Ω	2(WW)	145000-028					Fader Note 2
R3	500Ω	2(WW)	145000-089		39-500	112-500	FL-500	Bias

† "CONCENTRIKIT" equivalent: K-6 Kit with base elements and shafts: B11-139, P13-116 (Panel) B19-137X, R1-130 (Rear) 76-2 (Switch)

■ "STA-LOC" equivalent: FA26L, RU16T65, OS1500A, IS2000, US-42.

Note 1. Models CH-60M, -PB; DA-, DO-, DE-60-PB use part #145000-091.

Note 2. Not used on Manual Models (-M). Models CH-60-PB; DA-, DE-, DO-60-PB use Part #145000-092.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	10meg	
R5	3.3meg	
R6	3.3meg	
R7	47K	
R8	10meg	
R9	47K	

ITEM No.	RATING	REMARKS
R10	100K	
R11	1.5meg	
R12	3.3meg	
R13	4700Ω	
R14	150Ω	
R15	470K	

ITEM No.	RATING	REMARKS
R16	220Ω	
R17	10Ω	
R18	1Ω	
R19	100Ω	

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Stromberg-Carlson PART No.	REPLACEMENT DATA
K1	Antenna Filter	47mmf, 1meg		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Stromberg-Carlson PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant. Coil	①				
L2	RF Choke	114000-050②				
L3	RF Coil	①				
L4	Osc. Coil	①				
L5	Input IF Trans.	114000-203	BC-350	12-H1	RTC-8638	
L6	Output IF Trans.	114000-204	BC-354	12-H6	RTC-8640	

① Part of Tuner Ass'y.
② Includes Capacitor.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	Stromberg-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L7	1.5A	.7Ω	.008 HY	161000-001					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Stromberg-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	5.5	1	161000-171					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	Stromberg-Carlson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	30Ω Tap③6-8Ω	161000-170					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Stromberg-Carlson PART No.	QUAM PART No.	
SP1	6"x 9"	PM	6-8Ω	155000-043 ‡	69A2Z8	‡ Used in Models FO-60-M, FO-60-PB, and FA-60-M, FA-60-PB with padded dash
	6"x 9"	PM	6-8Ω	155000-044 *		* Used in Models CH-60-M, CH-60-PB, DO-60-PB, DA-60-PB, DE-60-PB
	5"x 7"	PM	6-8Ω	155000-051 ♦		♦ Used in Models FA-60-M, FA-60-PB

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	Tuner Assembly	164000-025	Models FO-60-M, FA-60-M (Manual)
	Tuner Assembly	164000-019	Models FO-60-PB, PA-60-PB (Pushbutton)
	Tuner Assembly	155000-044	Model CH-60-M (Manual)
	Tuner Assembly	164000-021	Model CH-60-M (Pushbutton)
	Tuner Assembly	164000-024	Models DA-60-PB, DE-60-PB, DO-60-PB (Pushbutton)
M2	Spark Plate	110000-021	

CABINETS & CABINET PARTS

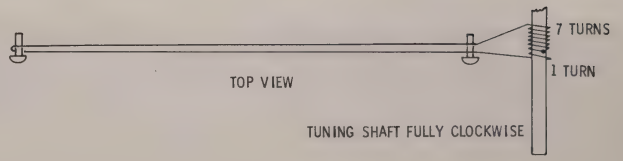
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	122000-036	Model FO-60-M, FA-60-M
Dial Glass	122000-037	Model FO-60-PB, FA-60-PB
Dial Glass	122000-055	Model DO-60-PB, DA-60-PB, DE-60-PB
Dial Glass	122000-045	Model CH-60-M
Dial Glass	122000-044	Model CH-60-PB
Dial Pointer	144000-008	Model, FO-60-M, FA-60-M
Dial Pointer	144000-009	Model, CH-60-M
Dial Pointer	144000-011	Model DA-60-PB, DE-60-PB, DO-60-PB
Pointer	171000-536	Arm, Assembly, Model DA-60-PB, DE-60-PB, DO-60-PB
Pointer	171000-410	Arm, Assembly, Model FO-60-PB, FA-60-PB
Pointer	171000-443	Arm, Assembly, Model CH-60-PB
Knob	134000-082	Tuning, Volume, Model FO-60-PB, FO-60-M
Knob	134000-105	Tuning, Volume, Model DA-60-PB, DE-60-PB, DO-60-PB
Knob	134000-085	Tuning, Volume, Model CH-60-M, CH-60-PB
Knob	134000-103	Tuning, Volume, Model FA-60-M, FA-60-PB
Knob	134000-106	Tone, Fader, Model DA-60-PB, DE-60-PB, DO-60-PB
Knob	134000-083	Tone, Fader, Model FO-60-M, FO-60-PB, FA-60-M, FA-60-PB
Knob	134000-084	Tone, Fader, Model CH-60-M, CH-60-PB
Pushbutton	107000-059	Model, FO-60-PB
Pushbutton	107000-060	Model, CH-60-PB
Pushbutton	107000-024	Model, FA-60-PB
Pushbutton	107000-026	Model DA-60-PB, DE-60-PB, DO-60-PB

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

TUNING DRIVE CORD STRINGING



PHOTOFACT® Folder

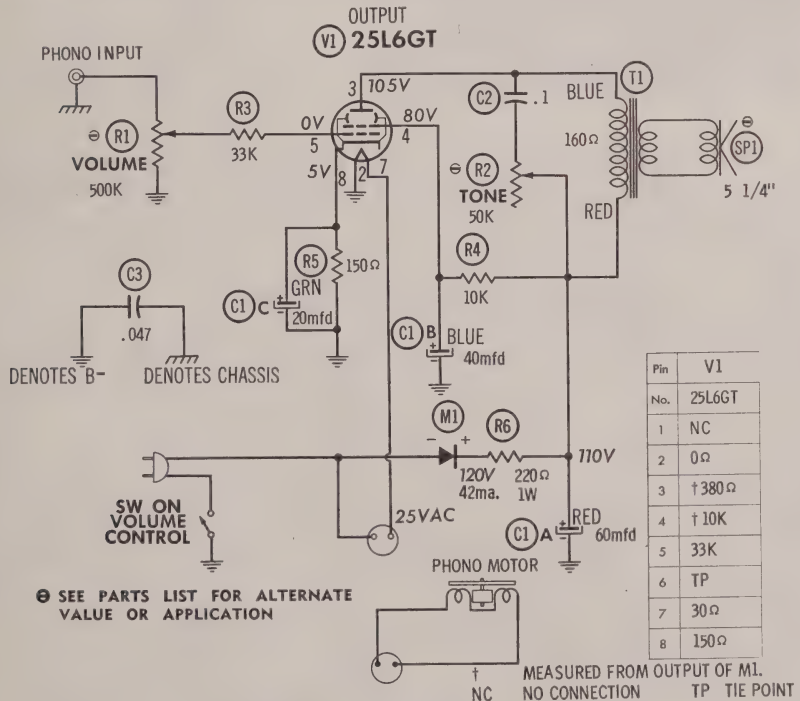
SYMPHONIC
MODELS 1512, 1514, 1614

SYMPHONIC
MODELS 1512, 1514, 1614

MODEL 1614

TRADE NAME	Symphonic Models 1512, 1514, 1614
MANUFACTURER	Symphonic Radio & Electronic Corp., 235 Jersey Ave., New Brunswick, N. J.
TYPE SET	AC Operated One Tube Phono Amplifier With 45 RPM Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 42 Watts, .4 Amp. @117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER – SEE SIMILAR RCA RP-190 SERIES – PHOTOFACT SET 144 FOLDER 7 OR RECORD CHANGER MANUAL CM-4



Pin No.	V1 25L6GT
1	NC
2	0Ω
3	†380Ω
4	†10K
5	33K
6	TP
7	30Ω
8	150Ω

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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KSI75

SET 519 FOLDER 14

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Output	25L6GT			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYMPHONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150	CE-101	PRS3800	BBRT84215	TCT3119	TDLT-7	TVA-3455	
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C3	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYMPHONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	VC-157	B-60-S	A47-500K-Z	Q13-133	U48	Volume Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R1A	500K	½	VC-139	B-60-S	A47-500K-Z	Q13-133	U48	Volume Note 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	Power Off-On
R2A	50K	½	VC-156	B-31	A47-50K-S	Q11-123	U35	Tone Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	50K	½	VC-109	B-32	A47-50K-Z	Q13-123	U33	Tone Note 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Used in Models 1514, 1614.
Note 2. Used in Model 1512.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	33K	
R4	10K	

ITEM No.	RATING	REMARKS
R5	150Ω	
R6	220Ω 1W	

ITEM No.	RATING	REMARKS

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω	3-4Ω	TR-109	A-3025	A-3332	24S53	S-12X	

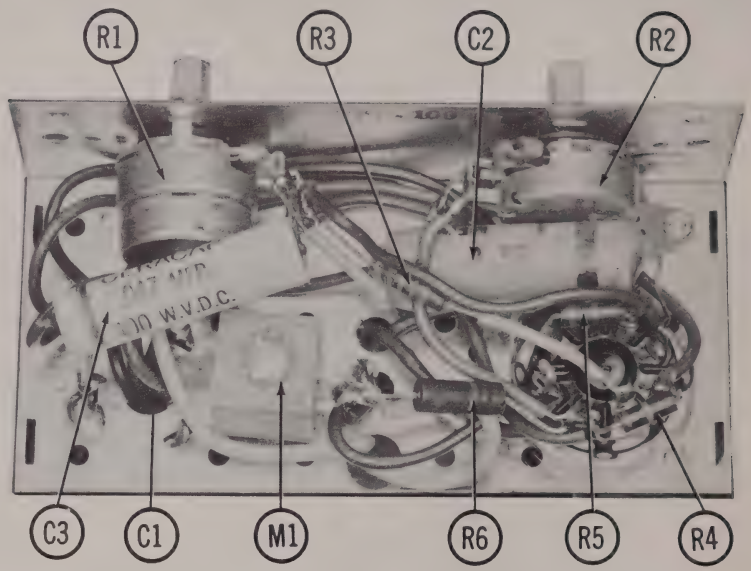
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYMPHONIC PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3-4Ω	SP-614 *	52A1	* Used in Models 1514, 1614
	4"	PM	3-4Ω	SP-401 ♦	4A1	♦ Used in Model 1512

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	SYMPHONIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.042A	SR-101 ♦	1N1763 *	65 ♦	SR200 *	♦ Selenium Type * Silicon Type

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	SYMPHONIC PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2			414-1	N8-1 *					

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KN290	Red, Volume, Tone, Model 1512
Knob	KN302	Turquoise, Volume, Tone, Model 1512
Knob	KN304	Clear With Nickel Insert, Volume, Tone, Model 1514, 1614

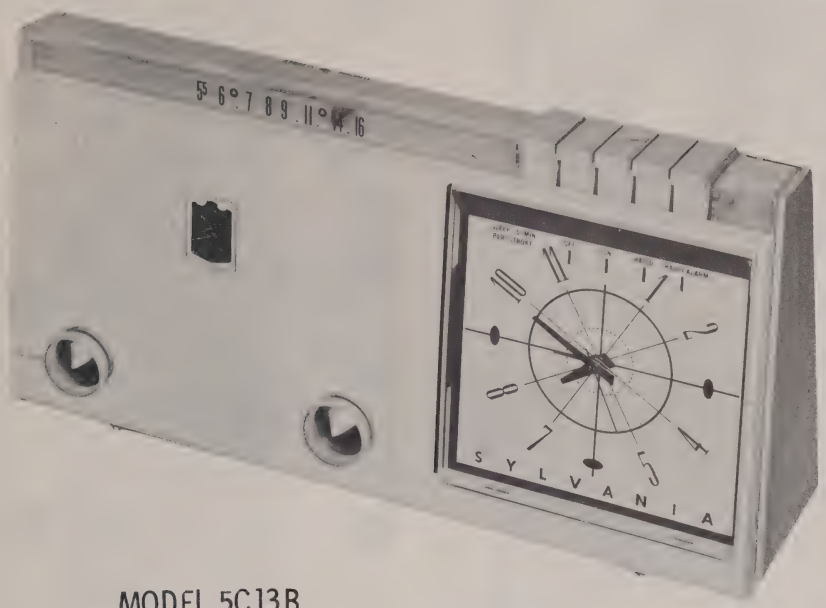
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

SYLVANIA MODELS 5C13B, P, T, 5T13B, P, T (Ch. 631-2, -3)

SYLVANIA MODELS 5C13B, P, T, 5T13B, P, T (Ch. 631-2, -3)



MODEL 5C13B

SYLVANIA MODELS 5C13B, P, T, 5T13B, P, T (Ch. 631-2, -3)

TRADE NAME	Sylvania Models 5C13B, 5C13P, 5C13T(Ch. 631-2); 5T13B, 5T13P, 5T13T (Ch. 631-3)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products, Inc., 700 Ellicott St., Batavia, N. Y.
TYPE SET	AC Operated 5 Tube AM Receiver With Electric Clock (Model 5T13 Does not Include Clock)
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 36 Watts, .36 Amp. @117 Volts AC (Less Clock)
TUNING RANGE—BROADCAST	540 – 1650KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1 Thru A4... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A7..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1650KC	"	"	A5	"
3.	"	600KC	600KC	"	A6	"
4.	Loop	1400KC	1400KC Signal.	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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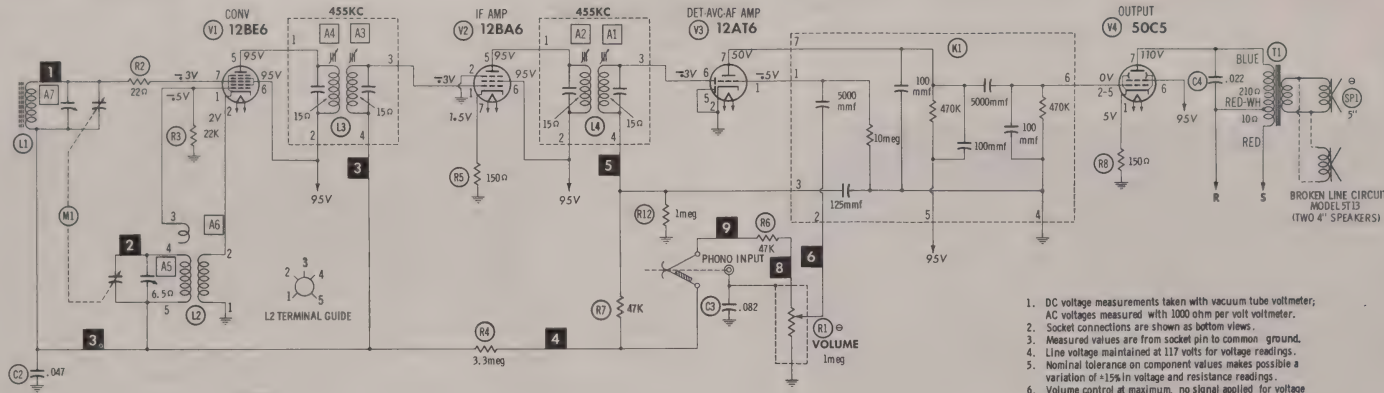
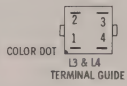
KG285

SET 519 FOLDER 15



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

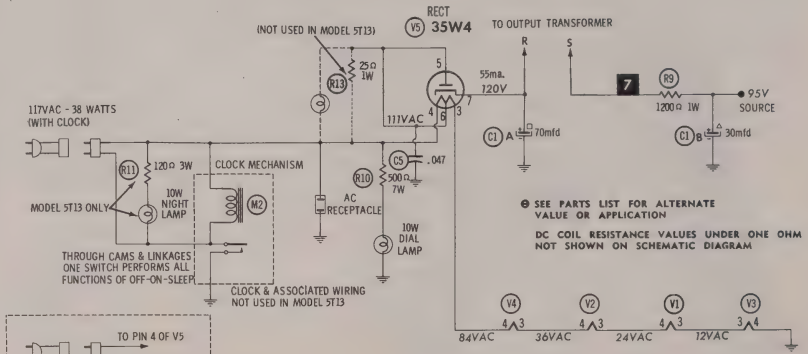


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	0Ω	15Ω	30Ω	†1200Ω	†1200Ω	3.8meg
V2	12BA6	3.8meg	0Ω	30Ω	45Ω	†1200Ω	†1200Ω	150Ω
V3	12AT6	10meg	0Ω	15Ω	0Ω	0Ω	500K	†470K
V4	50C5	150Ω	NC	45Ω	110Ω	470K	†1200Ω	†210Ω
V5	35W4	NC	TP	110Ω	150Ω	145Ω	145Ω	¶

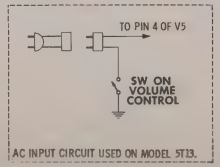
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V5. NC NO CONNECTION TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM



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SYLVANIA MODELS 5C13B, P, T, 5T13B, P, T (Ch. 631-2, -3)

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆			RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	12BE6	V4	Output	50C5
V2	IF Amplifier	12BA6	V5	Rectifier	35W4
V3	Det.-AVC-AF Amp.	12AT6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■70	150	161-2016	PWH2-17-50	B0150 ‡	PFP214.3		PCL-2441	
B	▲30	150							

‡ Use printed circuit adaptors #55277 & #55278.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C3	.082 400V							
C4	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C5	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	1meg	½	157-0055				P2-16A	Volume Note 1

Note 1. Power On-Off Switch is Part of R1 in Model 5T13 Series.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	22Ω	
R3	22K	
R4	3.3meg	
R5	150Ω	

ITEM No.	RATING	REMARKS
R6	47K	
R7	47K	
R8	150Ω	
R9	1200Ω 1W	

ITEM No.	RATING	REMARKS
R10	500Ω 7W	IRC#PW10-500Ω
R11	120Ω 3W	IRC#PW5-120Ω
R12	1meg	
R13	25Ω 1W	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Audio Coupling	100mmf, 100mmf, 100mmf, 125mmf, 5000mmf, 5000mmf, 470K, 470K, 10meg	190-0028	Centralab PC-390

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	581-0015	BC-419	705-A		
L2	Osc. Coil	113-0046				
L3	Input IF Trans.	121-0108	BC-356	13-PC1	RTC-8632	
L4	Output IF Trans.	121-0108	BC-357	13-PC2	RTC-8633	

PRINTED BOARD

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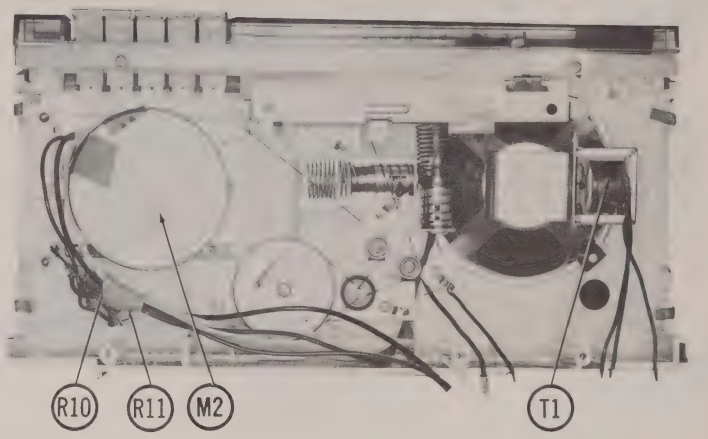
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CABINET—REAR VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3000Ω Tap @ 6%	3-4Ω	143-0075	A-3031	A-3336	24S89	S-16X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	539-0510 ‡	5A1R	‡ Model 5C Series
	4"	PM	6-8Ω	539-0431 ♦	4A07Z7.1	♦ Model 5T Series. Includes T1
	4"	PM		539-0432 *		* Model 5T Series.

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M1	Tuning Cap.	170-0043	2 Gang
M2	Clock Lamp	611-0007	Includes Switch Night & Dial, Model 5C Series Only.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

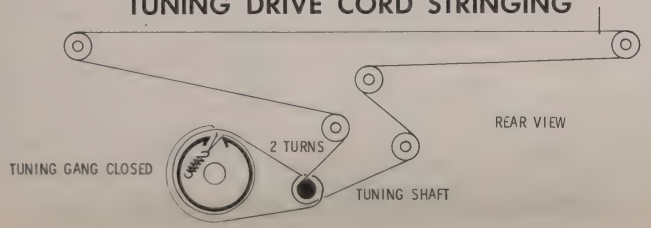
NAME	PART NO.	DESCRIPTION
Dial	722-0077	Model 5C Series
Dial	722-0079	Model 5T Series
Pointer	792-0024	Model 5C Series
Pointer	792-0028	Model 5T Series
Knob	740-0305	Tuning, Volume, Model 5C Series
Knob	740-0304	Tuning, Volume, Model 5T Series
Pushbutton	751-0008	Model 5C13B
Pushbutton	751-0006	Model 5C13P
Pushbutton	751-0007	Model 5C13T
Cabinet	822-0052	Back, Model 5C13B
Cabinet	822-0050	Back, Model 5C13P
Cabinet	822-0051	Back, Model 5C13T
Cabinet	822-0056	Back, Model 5T13B
Cabinet	822-0054	Back, Model 5T13P
Cabinet	822-0055	Back, Model 5T13T
Cabinet	822-0061	Front, Model 5C Series
Cabinet	822-0053	Front, Model 5T Series
Cabinet	822-0059	Top, Model 5T13B
Cabinet	822-0057	Top, Model 5T13P
Cabinet	822-0058	Top, Model 5T13T

WIRING DATA

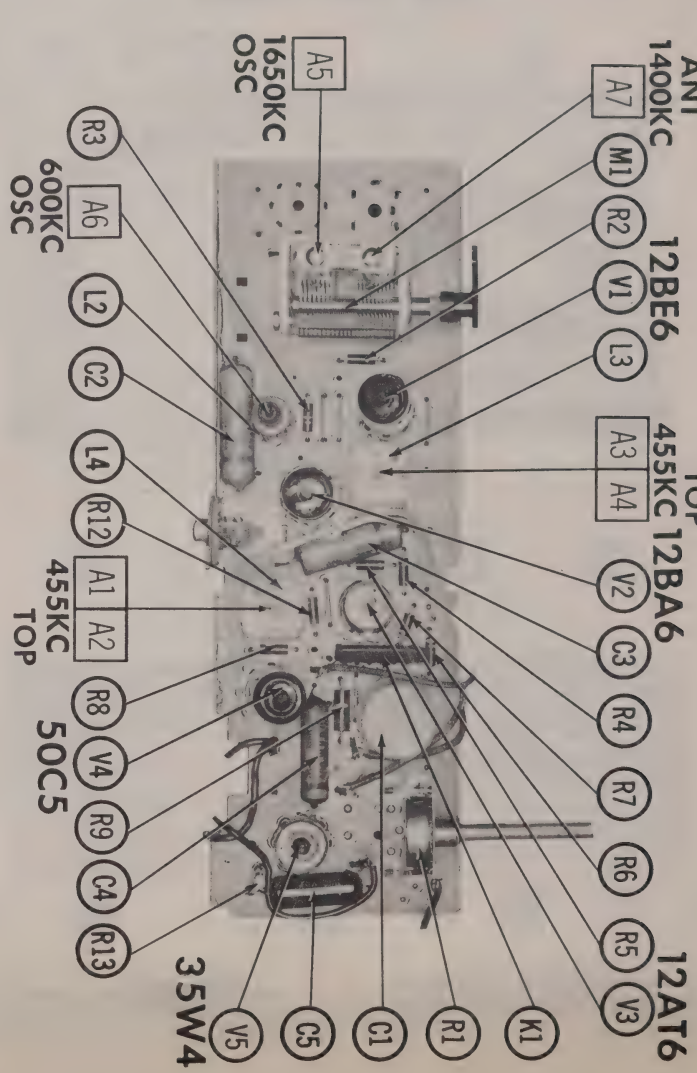
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

TUNING DRIVE CORD STRINGING



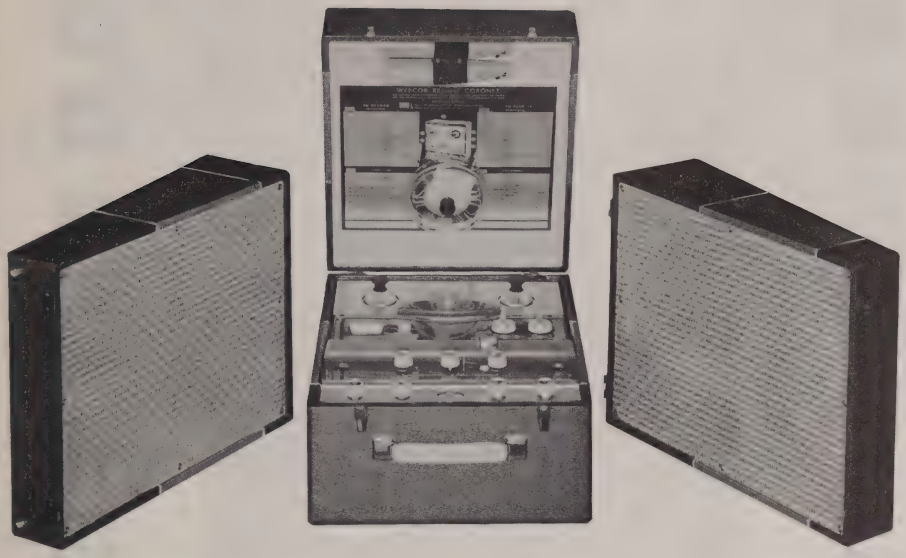
CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

WEBCOR MODELS EP-2007-1, EP-4007-1

WEBCOR MODELS
EP-2007-1, EP-4007-1



WEBCOR MODELS
EP-2007-1, EP-4007-1

TRADE NAME	Webcor Models EP-2007-1 (14X335 Preamp. Chassis, 14X330-1 Amp. Chassis), EP-4007-1 Speaker System
MANUFACTURER	Webcor, Inc., 5610 W. Bloomingdale Ave., Chicago 39, Illinois
TYPE SET	AC Operated 7 Tube Stereo Tape Recorder
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 80 Watts, .78 Amp. @117 Volts AC (Less Tape Deck)

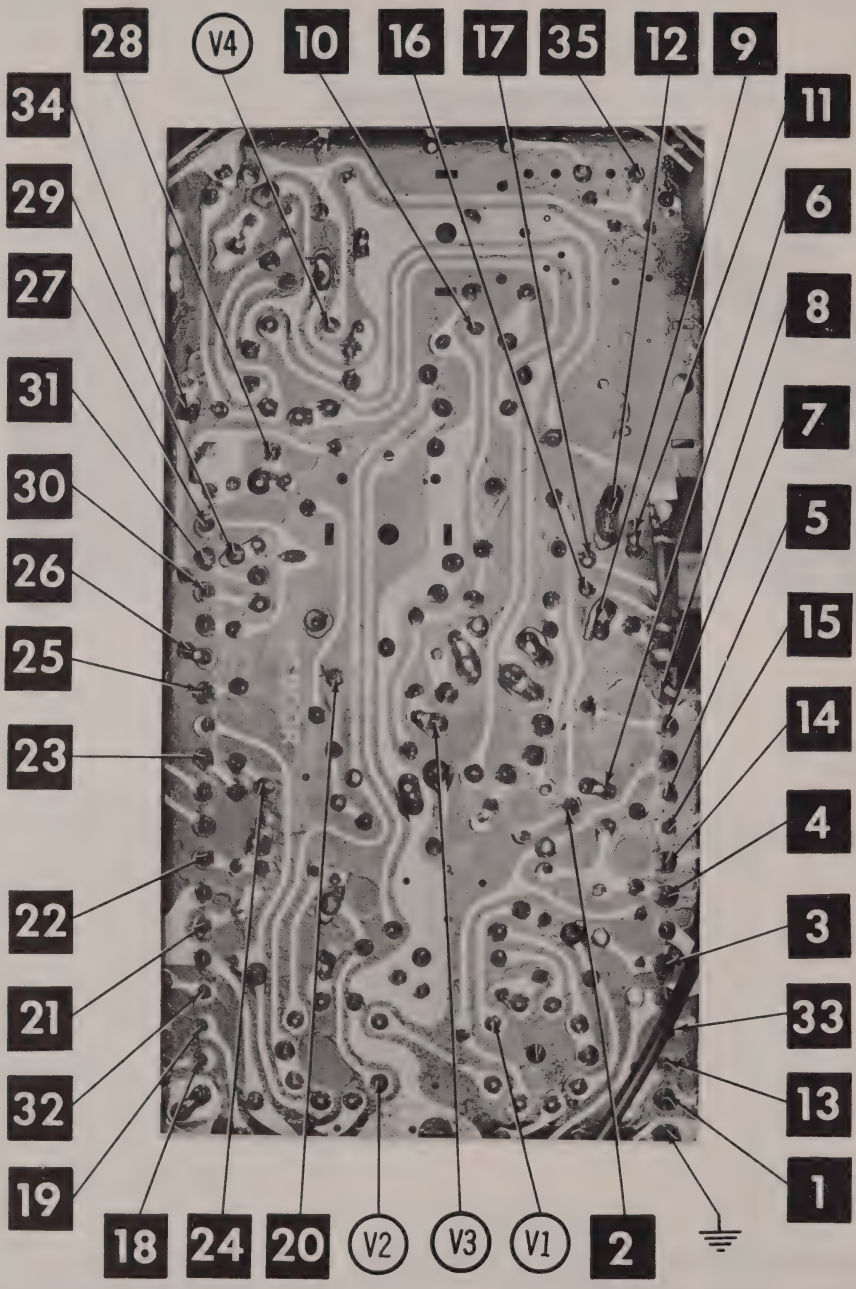
FOR SERVICE INFORMATION ON TAPE TRANSPORT MECHANISM — SEE SIMILAR WEBCOR 2810 — PHOTOFACT SET 458 FOLDER 17

SET 519 FOLDER 16

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

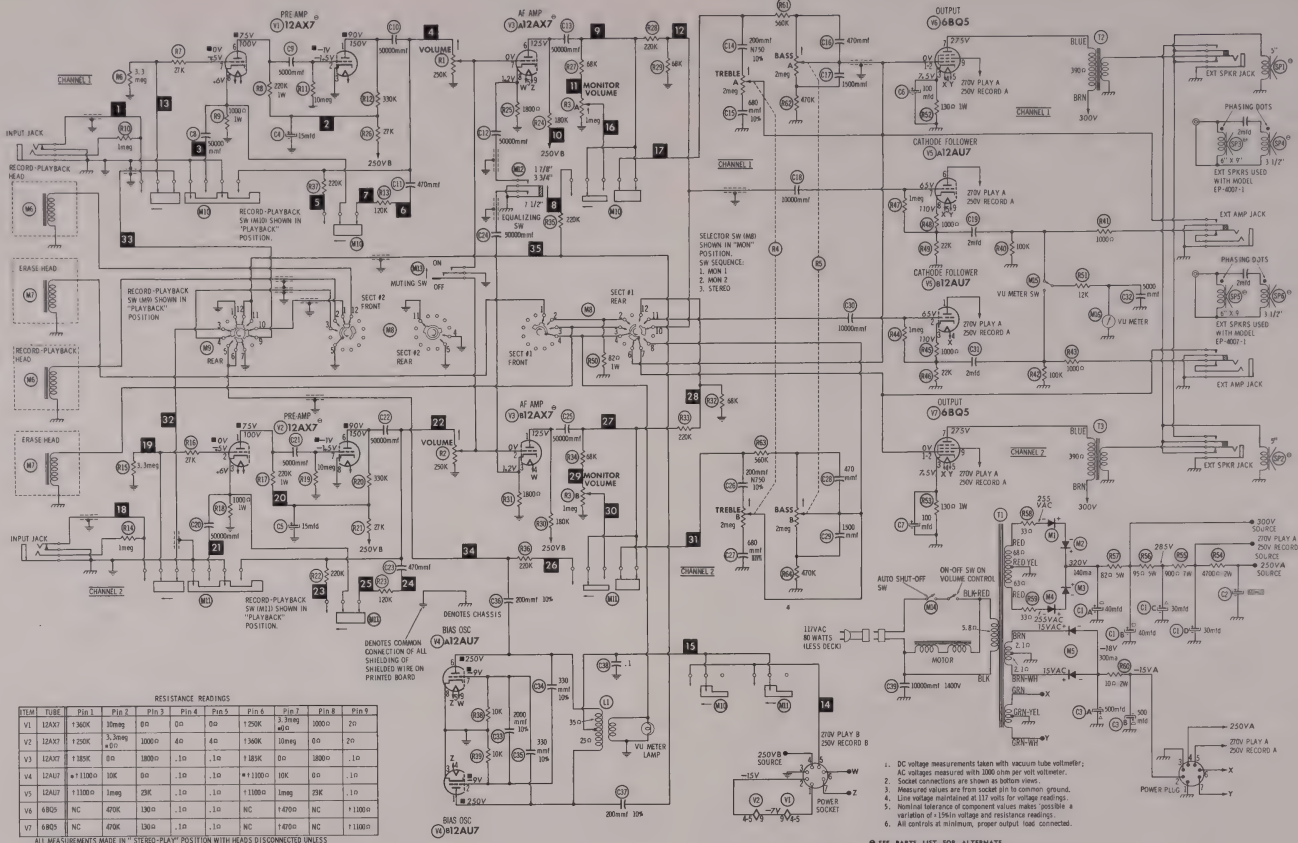
KQ084



A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



RESISTANCE READINGS

STEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†360K	0Ω	0Ω	0Ω	†250K	3.3meg ■0Ω	1000Ω	2Ω	
V2	12AX7	†250K	3.3meg ■0Ω	1000Ω	4Ω	4Ω	†360K	10meg	0Ω	2Ω
V3	12AX7	†185K	0Ω	1800Ω	.1Ω	.1Ω	†185K	0Ω	1800Ω	.1Ω
V4	12AU7	■†1100Ω	10K	0Ω	.1Ω	.1Ω	■†1100Ω	10K	0Ω	.1Ω
V5	12AU7	†1100Ω	1meg	25K	.1Ω	.1Ω	†1100Ω	1meg	25K	.1Ω
V6	6BQ5	NC	470K	130Ω	.1Ω	.1Ω	NC	†470Ω	NC	†1100Ω
V7	6BQ5	NC	470K	130Ω	.1Ω	.1Ω	NC	†470Ω	NC	†1100Ω

ALL MEASUREMENTS MADE IN " STEREO-PLAY" POSITION WITH HEADS DISCONNECTED UNLESS OTHERWISE DESIGNATED.
■ MEASURED IN " RECORD" POSITION.
† MEASURED FROM OUTPUT OF M2 & M3.

NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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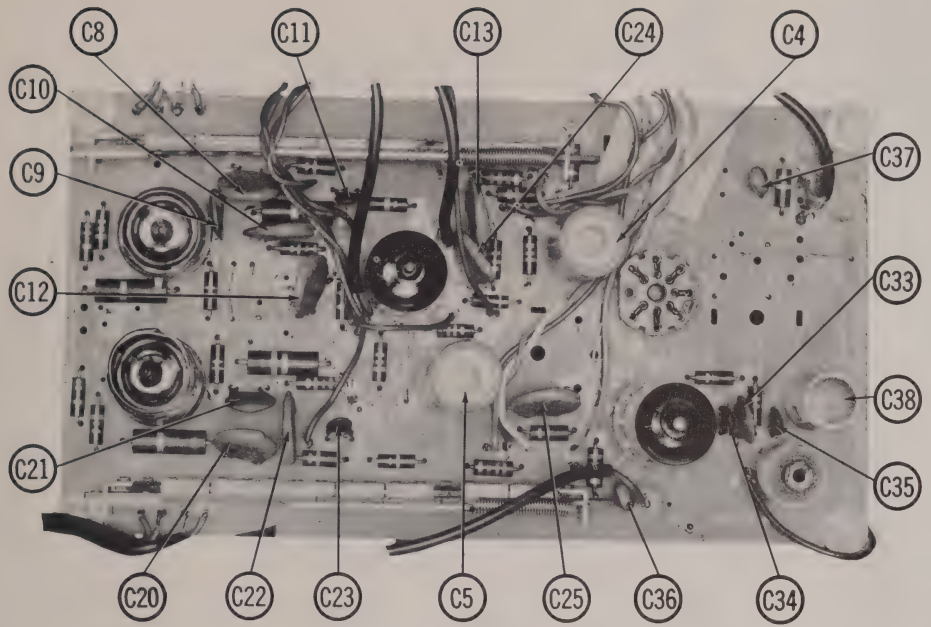
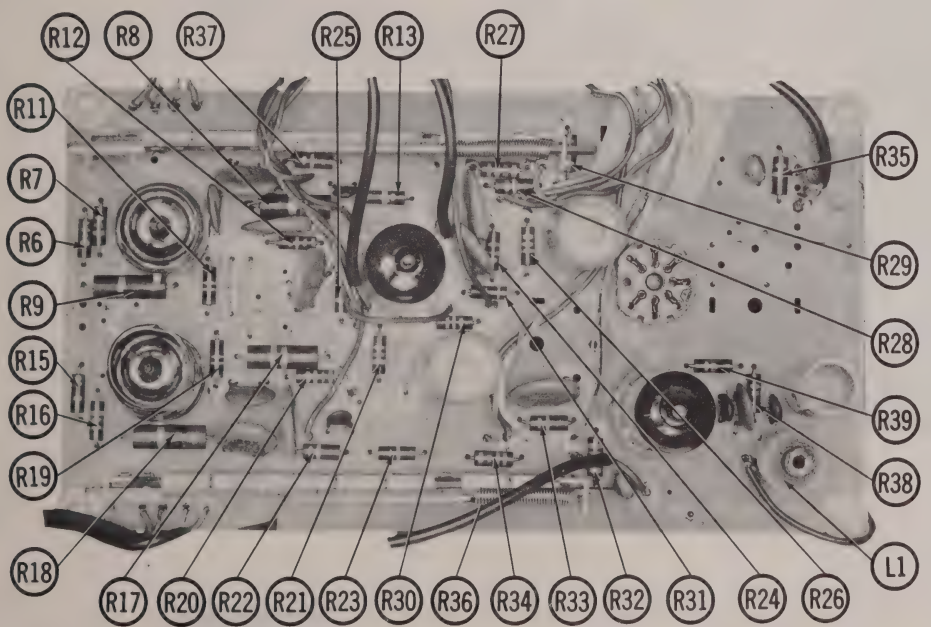
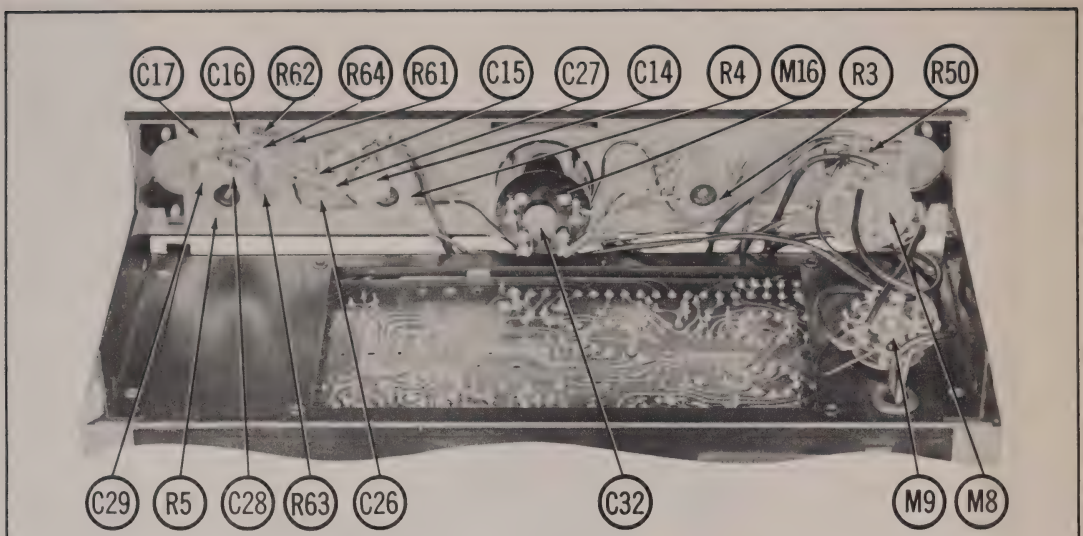
WEBCOR MODELS EP-2007-1, EP-4007-1



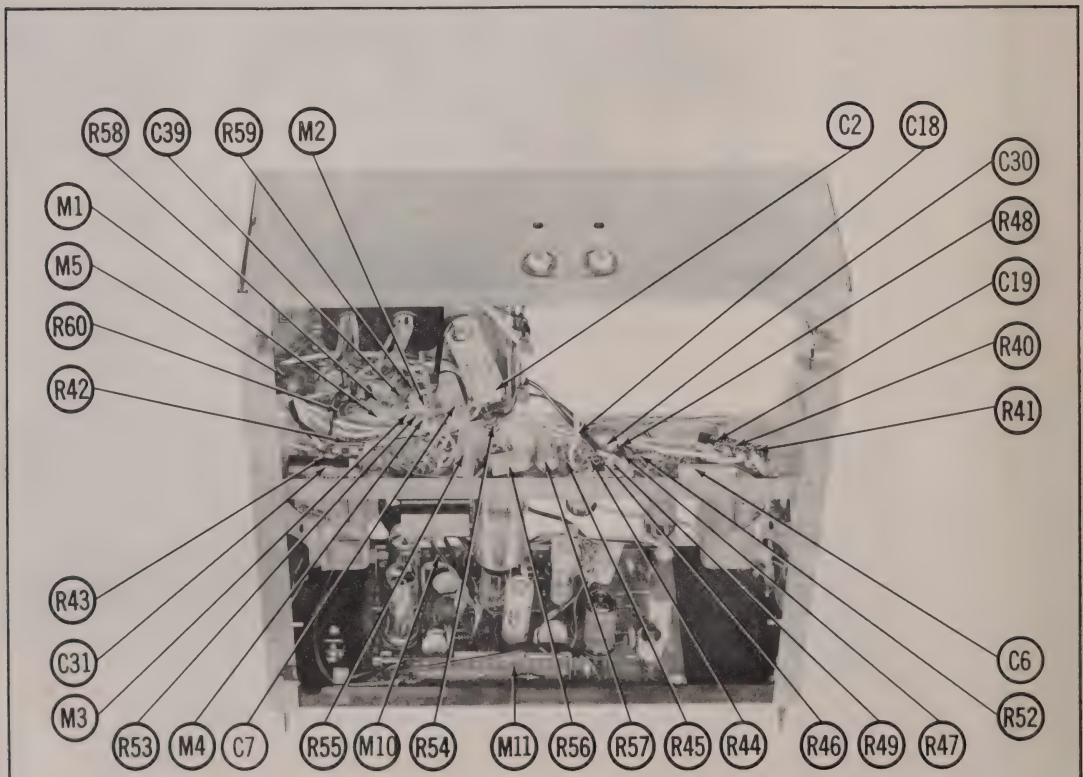
PRINTED BOARD - CAPACITOR IDENT.



PRINTED BOARD - RESISTOR & INDUCTOR IDENT.



CONTROL PANEL- REAR VIEW



CHASSIS -BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel 1 Preamp.	12AX7 (7025) *
V2	Channel 2 Preamp.	12AX7 (7025) *
V3	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7 (7025) *
V4	Bias Oscillator	12AU7
V5	VU Meter Cathode Follower	12AU7
V6	Channel 1 Output	6BQ5
V7	Channel 2 Output	6BQ5

* Alternate.

ELECTROLYTIC CAPACITORS

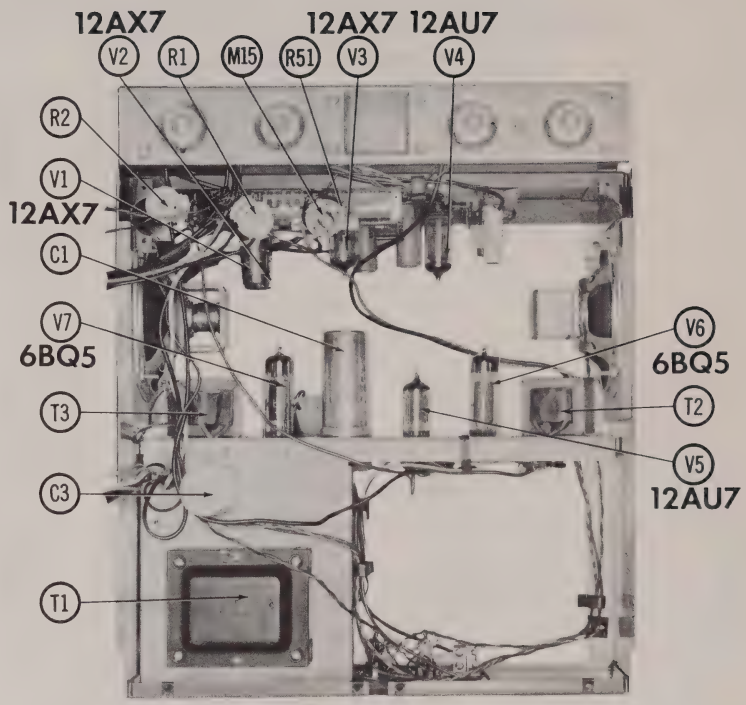
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	30P396	AFH4-18-40	D0176	FP447.5	TMQ-4652	TVL-4774	
B	■40	450							
C	▲30	450							
D	30	450							
C2	30	450	30P403	PRS1740	BR3045	TC77	TD-30-450	TVA-1711	
C3A	500	20	30P356						
B	500	20							
C4	15	300	30P281	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C5	15	300	30P281	PRS1640	BR1635	TC64	TD-16-350	TVA-1607	
C6	100	15	30P384	PRS1200	BBR100-15	TC2501	TD-100-15	TVA-1160	
C7	100	15	30P384	PRS1200	BBR100-15	TC2501	TD-100-15	TVA-1160	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C8	50000		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C9	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C10	50000		BPD-05	DD-503	H-05S5	4DP-3-503	GP150	5HK-S50
C11	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C12	50000		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C13	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C14	200 N750 10%		N750-DI 200	DTN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C15	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C16	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C17	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	2mfd 200V		P282Z-2.0		MP2W2			
C20	50000		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C21	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	50000		BPD-05	DD-503	CUB4S5	4DP-3-503	GP150	5HK-S50
C23	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C24	50000		BPD-05	DD-503	H-05S5	IDP-2-503	GP150	5HK-S50
C25	50000		BPD-05	DD-503	H-05S5	4DP-3-503	GP150	5HK-S50
C26	200 N750 10%		N750-DI 200	DTN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C27	680 10%		DI-680	DD-681	5R5T68	CCD-681	GP368	10TS-T68
C28	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C29	1500		BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C30	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	2mfd 200V		P282Z-2.0		MP2W2			
C32	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C33	2000 10%		DI-2000		5R5D2	CCD-202	GP220	10TS-D20
C34	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C35	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C36	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C37	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C38	.1 400V		P415N-1	DF-104	BC6P1J	4DP-3-104	ACE-401	4SE-P10
C39	10000 1400V		DAC-27	DDI6-103	HVE16S1	16DP-3-103	UAC-110	BL-S10

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K		31P177-A	B-51	A47-250K-S	Q13-130	U44	Volume, Channel 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power Off-On
R2A	250K		31P175-A	B-51	A47-250K-S	Q13-130	U44	Volume, Channel 2
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg		31P178-A	B-70	AD47-1meg-Z		FA16A	Monitor Volume, Channel 1
B	1meg			SR-70	Not Req.		RU16A	Monitor Volume, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R4A	2meg		31P179	B-76	AD47-2meg-Z		FA26A	Treble, Channel 1
B	2meg			SR-76	Not Req.		RU26A	Treble, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	
R5A	2meg		31P179	B-76	AD47-2meg-Z		FA26A	Bass, Channel 1
B	2meg			SR-76	Not Req.		RU26A	Bass, Channel 2
C	Shaft			Not Req.	FS-3		CS3500	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R6	3.3meg	
R7	27K	
R8	220K 1W	
R9	1000Ω 1W	
R10	1meg	
R11	10meg	
R12	330K	
R13	120K	
R14	1meg	
R15	3.3meg	
R16	27K	
R17	220K 1W	
R18	1000Ω 1W	
R19	10meg	
R20	330K	
R21	27K	
R22	220K	
R23	120K	
R24	180K	
R25	1800Ω	

ITEM No.	RATING	REMARKS
R26	27K	
R27	68K	
R28	220K	
R29	68K	
R30	180K	
R31	1800Ω	
R32	68K	
R33	220K	
R34	68K	
R35	220K	
R36	220K	
R37	220K	
R38	10K	
R39	10K	
R40	100K	
R41	1000Ω	
R42	100K	
R43	1000Ω	
R44	1meg	
R45	1000Ω	

ITEM No.	RATING	REMARKS
R46	22K	
R47	1meg	
R48	1000Ω	
R49	22K	
R50	82Ω 1W	
R51	12K	
R52	130Ω 1W	
R53	130Ω 1W	
R54	4700Ω 2W	
R55	900Ω 7W	IRC#PW10-900Ω
R56	95Ω 5W	IRC#PW5-95Ω
R57	82Ω 5W	IRC#PW5-82Ω
R58	33Ω	
R59	33Ω	
R60	10Ω 2W	
R61	560K	
R62	470K	
R63	560K	
R64	470K	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	Bias Osc.	65P152				

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .78A	520VCT @ .140A	6.3VCT @ 2.4A	68P085					
	SEC. 3	SEC. 4	SEC. 5						
	30VCT @ .300A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA WEBCOR PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	3800Ω	6-8Ω	67P086-B	A-2902	A-3849	24S64		
T3	3800Ω	6-8Ω	67P086-B	A-2902	A-3849	24S64		

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA WEBCOR PART No.	QUAM PART No.	NOTES
SP1	5"	PM	6-8Ω	76P103 *	5A15Z8	* Used in Model EP-2007-1
SP2	5"	PM	6-8Ω	76P103 *	5A15Z8	♦ Used in Model EP-4007-1
SP3	6"x 9"	PM	6-8Ω	76P051 ♦	69A3Z7	
SP4	3½"	PM	6-8Ω	76P081-1 ♦	3A15T	
SP5	6"x 9"	PM	6-8Ω	76P051 ♦	69A3Z7	
SP6	3½"	PM	6-8Ω	76P081-1 ♦	3A15T	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA WEBCOR PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.140A	65P155 *	1N1763	F-4	SR500	* Silicon Type
M2	.140A	65P155 *	1N1763	F-4	SR500	♦ Dual Selenium
M3	.140A	65P155 *	1N1763	F-4	SR500	
M4	.140A	65P155 *	1N1763	F-4	SR500	
M5	.300A	65P153 ♦		3N33-ICN1-RV ♦		

MISCELLANEOUS

ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M6	Head	65P160	1/4 Track Stereo Record-Playback
M7	Head	11X2272	1/4 Track Stereo Erase
M8	Switch	32P158	Head (Rotary Type)
M9	Switch	32P157	Record-Playback (Rotary Type)
M10	Switch	32P152	Record-Playback (Slide Type)
M11	Switch	32P152	Record-Playback (Slide Type)
M12	Switch	32P153	Equalization
M13	Switch	32P131	Muting
M14	Switch	32P156-3	Automatic Shut-Off
M15	Switch	32P159	"VU" Meter
M16	"VU" Meter	65P161	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	11X1944-3AF	Insert And Set Screw Assembly
Knob	39P240-2	Volume, Bass, Treble, Function Selector, Meter Function
Cabinet	92X125-1	Ebony
Handle	39P252-1	Cabinet

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

ZENITH
MODEL DPS-50L

ZENITH
MODEL DPS-50L

ZENITH
MODEL DPS-50L

TRADE NAME	Zenith Model DPS-50L
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 26 Watts, .3 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER 169 – 119 – SEE SIMILAR V-M 1201 – PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KT187

SET 519 FOLDER 17

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7A	V2 V3	Channel 1 Output Channel 2 Output	50EH5 50EH5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A B	80 20	150 150	WC12018	PRS2220	BBRD8415	TCD4975	TDLD-10	TVA-2460	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C3	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C6	2200		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C7	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	47		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C10	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C11	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5meg		V C13229	B-88			FB56A	Volume, Channel 1
B	5meg			SR-88			RU56A	Volume, Channel 2
C	Shaft			Not Req.			CS3500	
R2A	2meg		WC13228	B-76	AD47-2meg-Z		FA26A	Tone, Channel 1
B	2meg			SR-76	Not Req.		RU26A	Tone, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg		WC13501	B-69	A47-1meg-S	Q11-137	U54	Balance
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS (IRC or EQUIVALENT)

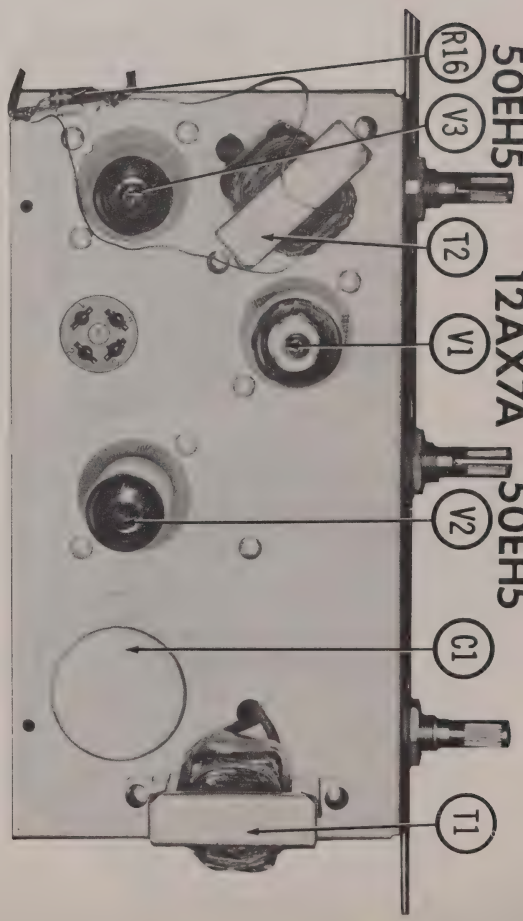
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	10meg	
R5	270K	
R6	10meg	
R7	68Ω	
R8	10meg	

ITEM No.	RATING	REMARKS
R9	10meg	
R10	270K	
R11	68Ω	
R12	4700Ω 1W	
R13	15Ω 1W	

ITEM No.	RATING	REMARKS
R14	15Ω 1W	
R15	33Ω 1W	
R16	47Ω	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	1-2Ω	WC12442		A-3877 ①	24S48		① Drill New Mounting Holes.
T2	2500Ω	1-2Ω	WC12442		A-3877 ①	24S48		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	WC11792	4A07	
SP2	4"	PM	3-4Ω	WC11792	4A07	
SP3	4"	PM	3-4Ω	WC11792	4A07	
SP4	4"	PM	3-4Ω	WC11792	4A07	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	ZENITH PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.070A	WC14027 *	1N1763 *	40H *	SR 500 *	* Silicon Type

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	ZENITH PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	142-92	56-399 * or 56-401 * (LP)	13TB	Not Req.	26S	S1-1 * and S3-3 *	8TA4-S	N-8TA-S *	① May be used in some versions.
	142-102①	56-400 * (78 RPM)							

CABINETS & CABINET PARTS

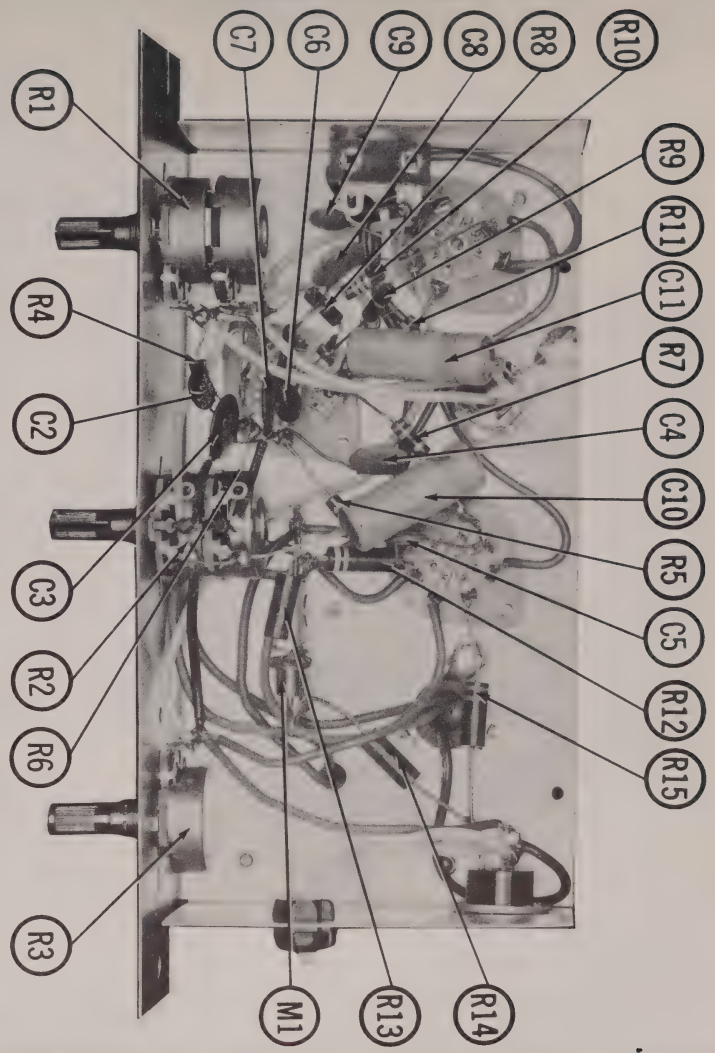
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

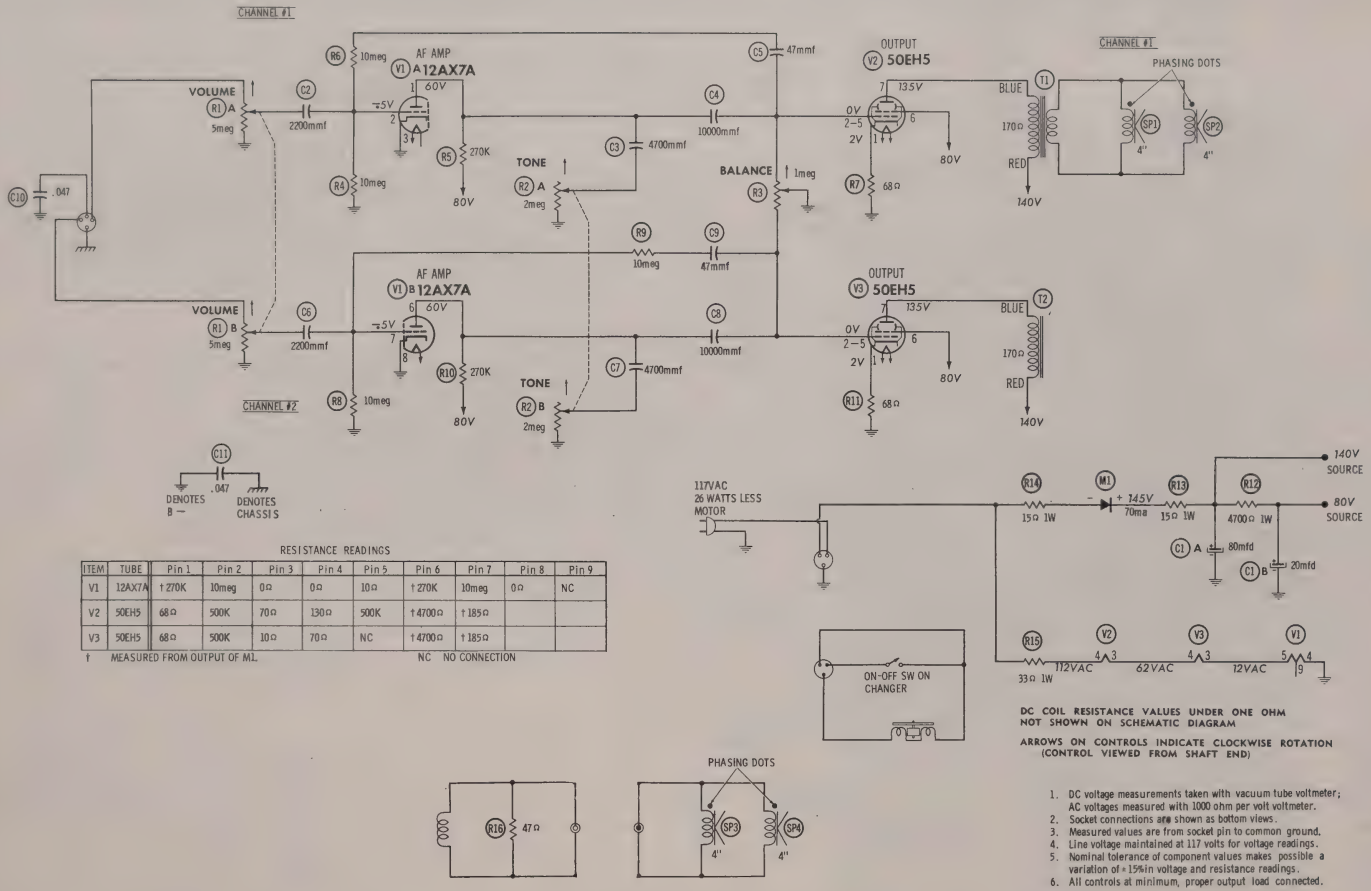
NAME	PART NO.	DESCRIPTION
Knob	WC13440-8E	3 Used
Cabinet	WC13961	Master And Remote Cabinets, Includes Hardware Motorboard, Jack Eyelet, Grille Cloth and Control Panels, Less Amplifier Panel and Remote Back.
Handle Ass'y.	WC13448-8B	Includes Two Plates.

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†270K	10meg	0Ω	0Ω	10Ω	†270K	10meg	0Ω	NC
V2	50EH5	68Ω	500K	70Ω	130Ω	500K	†4700Ω	†185Ω		
V3	50EH5	68Ω	500K	10Ω	70Ω	NC	†4700Ω	†185Ω		

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ZENITH
MODEL DPS-50L

PHOTOFACT® Folder

ZENITH
MODEL SFD-660C

ZENITH
MODEL SFD-660C

TRADE NAME	Zenith Model SFD-660C (Ch. 5D20)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 5 Tube AM Receiver with 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 43 Watts, .4 Amp. @ 117 Volts AC (Less Motor)
TUNING RANGE	BROADCAST 535 - 1620KC

FOR SERVICE INFORMATION ON RECORD CHANGER 169-126 - SEE SIMILAR V-M 1201 - PHOTOFACT SET 436 FOLDER18
OR RECORD CHANGER MANUAL RC-12

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A4, A6 .....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A5, A7 .....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of Converter. Low side to chassis.	455KC (400% Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A5	"
3.	Loop	600KC	600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.	"	1500KC	1500KC Signal	"	A7	Adjust for maximum output. Repeat steps 2 thru 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KP172

SET 519 FOLDER 18

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Converter	6BE6	V4	Output	6AQ5A
V2	IF Amplifier	6BA6	V5	Rectifier	5Y3GT
V3	Det. - AVC - AF Amp.	6AV6			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	22-1720	AFH3-134	C1080	FP369.1	TMT-3628	TVL-3744.2	
B	■40	450							
C	▲40	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	4TM-S47
C3	100				BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C4	.047	600V			P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C5	100				BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10
C6	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	1500				BPD-0015	DD-152	BYA10D15	CCD-152	B-215	5HK-D15
C8	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C9	47	N75	10%	#22-2376				*		
C10	1000		10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C11	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	220		10%			D6-221	L10T22	CCD-221	GP322	10TS-T22
C13	.022	600V			P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C14	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C16	2200				BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C17	.047	600V			P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C18	.033	200V	10%		V84C2S33-10%		PM4S33	4DP-2-333	GEM-1613	6TM-S33
C19	.01	600V			P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

Zenith Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch	non-shielded	63-4663					Radio-Phono
B	3meg 2meg Tap							Loudness
C	Switch							Power On-Off
R2A	3meg		63-4662				■ UE4179	Bass
B	500K							Treble

■ "STA-LOC" Equivalent: FA36R, RU55A, OS875A, IK1625.

RESISTORS (IRC or EQUIVALENT)

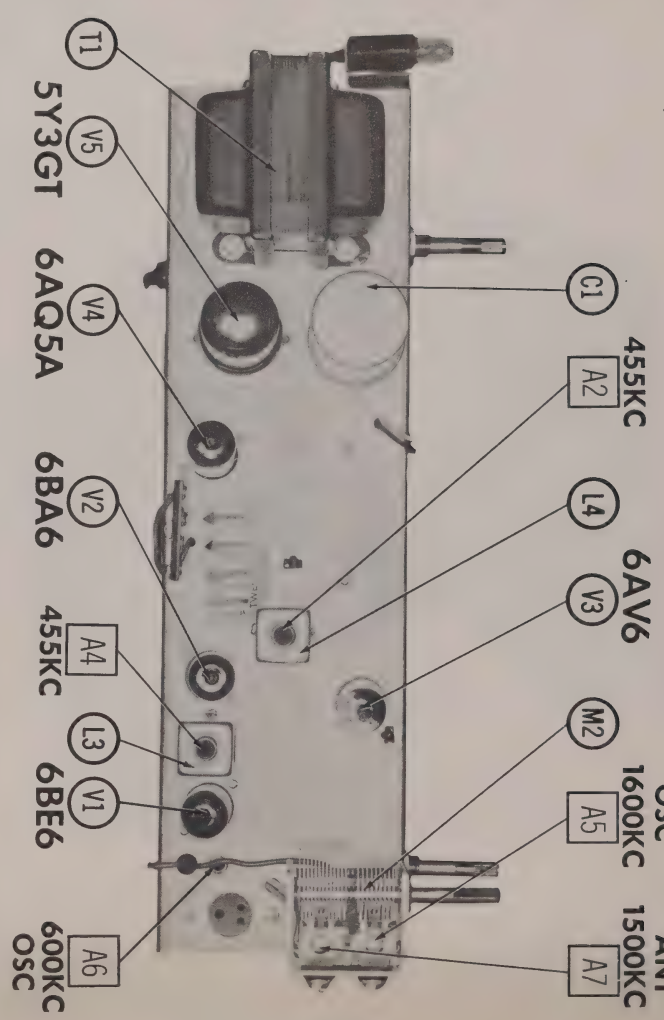
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	22K	
R4	1750Ω 2W	Pt. #63-4664
R5	2.2meg	
R6	68Ω	
R7	47K	
R8	330K	
R9	220K	

ITEM No.	RATING	REMARKS
R10	15meg	
R11	1.8meg	
R12	220K	
R13	2200Ω	
R14	47K	
R15	10K	
R16	220K	

ITEM No.	RATING	REMARKS
R17	470K	
R18	330Ω 1W	
R19	22K	
R20	150K	
R21	4000Ω 5W	Pt. #63-4665 IRC #PW5-4000Ω
R22	47K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	S-24659	BC-419			
L2	Osc. Coil	S-24654	BC-394	71-OSC	RTC-8648	
L3	Input IF Trans.	95-1718	BC-356	13-PC1	RTC-8641	
L4	Output IF Trans.	95-1556	BC-355 *	13-PC6	RTC-8643	* Fabricate Mounting

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .4A	480VCT @ .045A	5V @ 2A	95-1713					
	SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 1.6A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	ZENITH PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6600Ω	3-4Ω	95-1712	A-2900	A-3878	22S86	S-51X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	49-849	8A31	
SP2	ELECTROSTATIC			S-23829		
SP3	ELECTROSTATIC			S-23829		

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	ZENITH PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	142-92	56-400 * (78RPM)	13TB	Not Req.	26S	S1-3 *	8TA4-S	N-8TA-S *	
		56-399 * or 56-401 * (LP)				S1-1 *			

MISCELLANEOUS

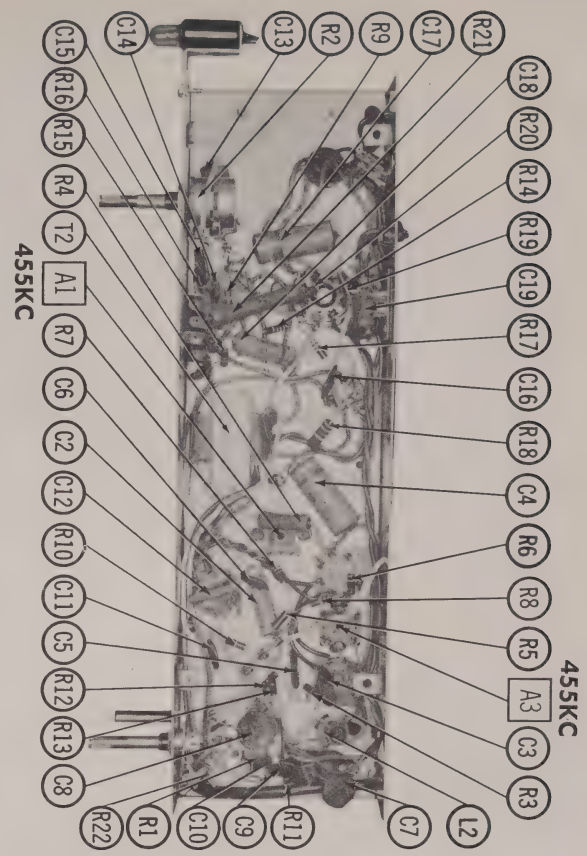
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Tuning Cap.	22-3073	2 Gang (Ant. 37-362mmf, Osc. 29-120mmf)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

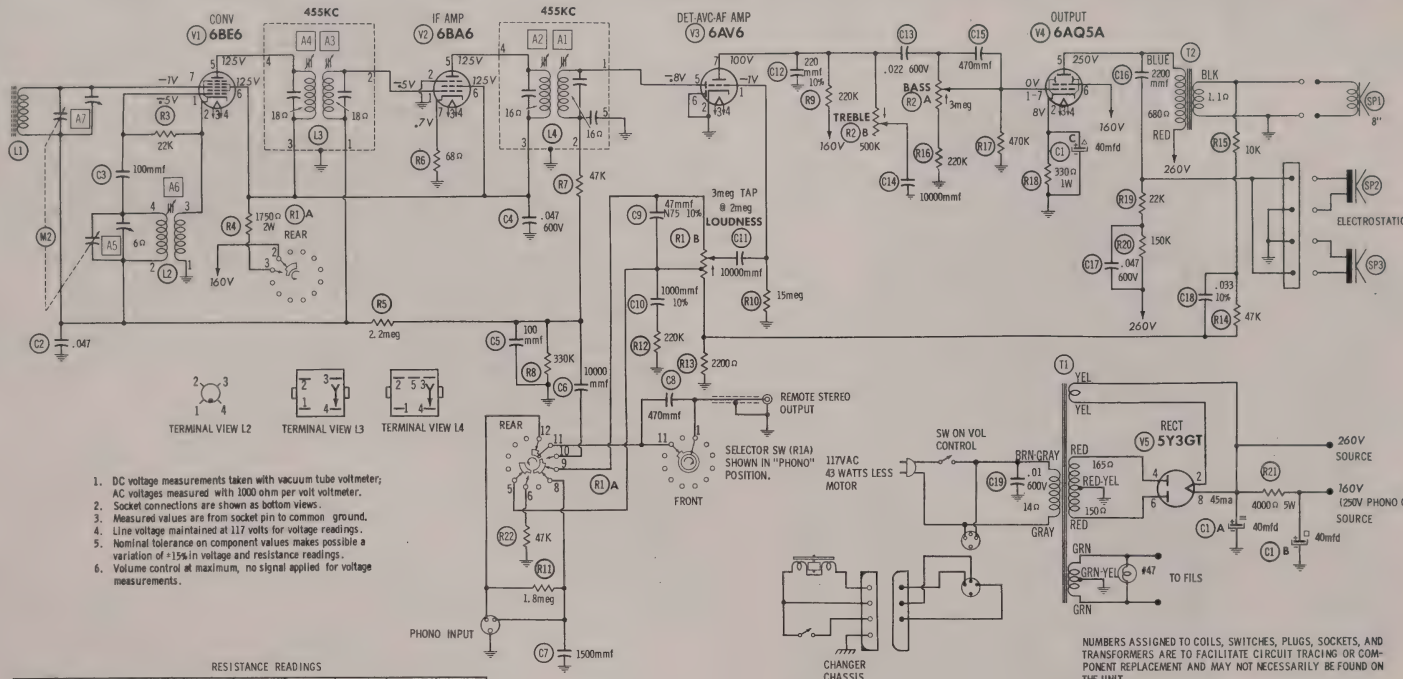
NAME	PART NO.	DESCRIPTION
Knob	S-45377	Tuning with Spring Assembly
Knob	46-1813	Loudness, Treble
Knob	S-43480	Bass with Ring Assembly
Knob	S-47867	Function Selector with Ring Assembly
Cabinet	14-2890C	Table
Handle	36-244	Cabinet, Part of Part #14-2890C

CHASSIS—BOTTOM VIEW



WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No.	1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor - Twisted)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6BE6	22K	.5Ω	.1Ω	.1Ω	†5700Ω	†5700Ω	2.5meg	
V2	6BA6	2.5meg	0Ω	.1Ω	.1Ω	†5700Ω	†5700Ω	68Ω	
V3	6AV6	15meg	0Ω	.1Ω	.1Ω	380K	0Ω	†224K	
V4	6AQ5A	300K	330Ω	.1Ω	.1Ω	†680Ω	†4000Ω	NC	
V5	5Y3GT	NC	¶	TP	165Ω	TP	150Ω	TP	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT. MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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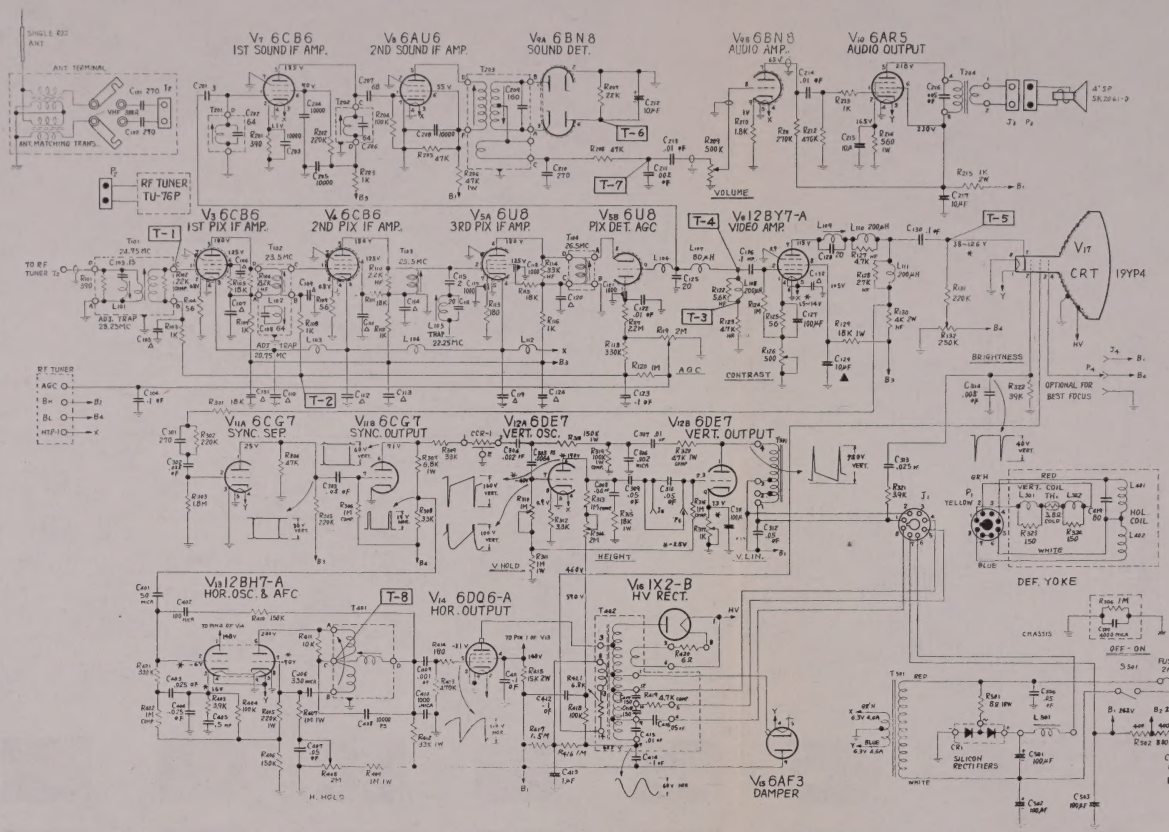
ZENITH
MODEL SFD-660C



NOTES:
All DC Voltages measured with VTVM and with no signal input.
All resistance values in ohms.
K: 1,000 M: 1,000,000
All capacitance values less than 1 in MF and above 1 in MMF unless otherwise indicated.
Unspecified resistors are carbon resistors ½ Watt.
COMP: composition resistor
PR: porcelain resistor
Unspecified capacitors are ceramic capacitor.
△ : 1600 MMF ceramic capacitor
MP: metallized capacitor
OF : oilfilled capacitor
PA : paper capacitor
PS : polystyroll capacitor

UP SIDE or LEFT SIDE
REAR
OUT SIDE
IN SIDE

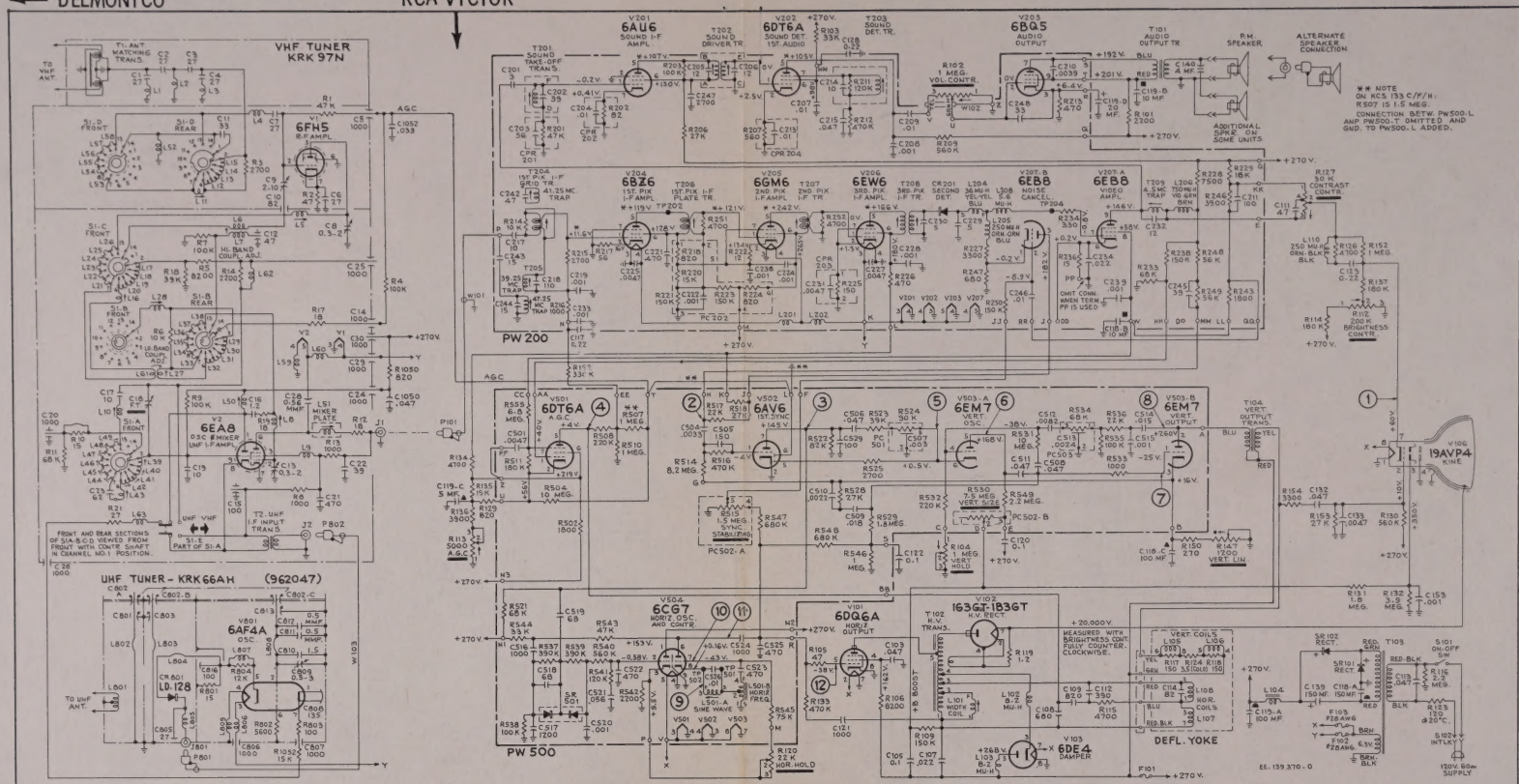
※ Voltage readings will vary with setting of controls.

DELMONICO MODEL PTV-19

Schematic Diagram Courtesy of Delmonico International Corporation

← DELMONICO

RCA VICTOR



All schematics are shown in the latest condition at the time of printing.

All resistance values in ohms. K = 1000.

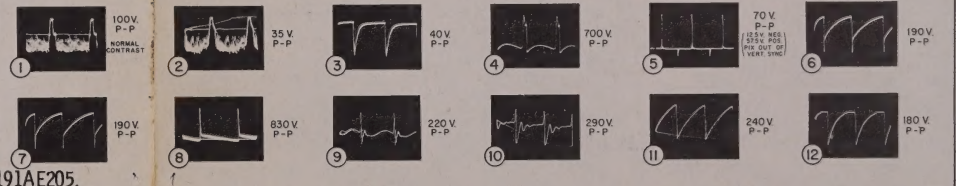
All capacitance values less than 1 in F and above 1 in MF unless otherwise noted.

Direction of arrows at controls indicates clockwise rotation.

All voltages measured with "Volt-Ohmyst" and with no signal input. Voltages should hold within ±20% with 120v. a-c supply.

*Measured with 1 megohm, ½ watt resistor in series with meter probe.

Balloons ① ② etc., shown on schematics indicate points of observation of the waveforms shown below the schematic.


① 100V. P-P NORMAL CONTRAST
② 35 V. P-P
③ 40V. P-P
④ 700 V. P-P
⑤ 70 V. P-P (2.5 V. RES 375 V. P.R.S. (PIX OUT OF VERT. SYNC)
⑥ 190 V. P-P
⑦ 190 V. P-P
⑧ 830 V. P-P
⑨ 220 V. P-P
⑩ 290 V. P-P
⑪ 240 V. P-P
⑫ 180 V. P-P

RCA VICTOR MODELS 191A192, U, 191A194, U, 191AE202, U, 191AE205, U, 191AE 208, U, 191AE209, U, 191AER204 (CH. KCS 133A, B, C, F, H)

Schematic Diagram Courtesy of Radio Corporation of America

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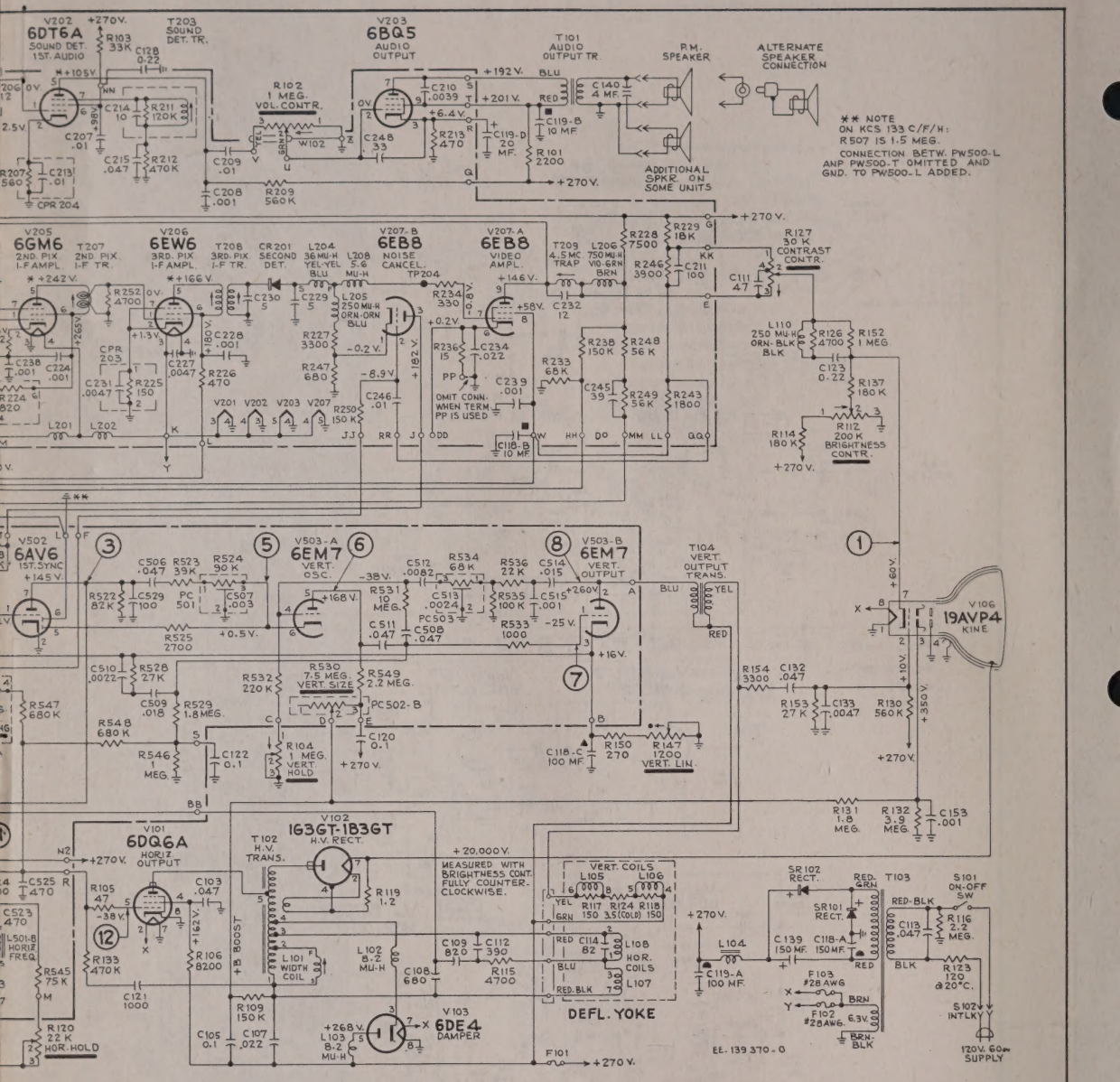
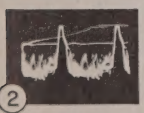
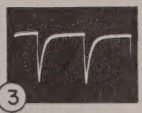
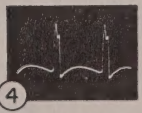
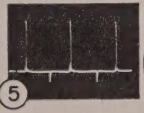
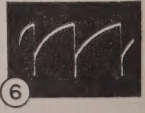

V202 6DT6A SOUND DET. 1ST. AUDIO
T203 SOUND DET. TR.
V203 6BQ5 AUDIO OUTPUT
T101 AUDIO OUTPUT TR.
P.M. SPEAKER
ALTERNATE SPEAKER CONNECTION
** NOTE ON KCS 133 C/F/H: R507 IS 1.5 MEG. CONNECTION BETW. PW500-L AND PW500-T OMITTED AND GND. TO PW500-L ADDED.
R102 1 MEG. VOL. CONTR.
ADDITIONAL SPKR. ON SOME UNITS
+270 V.
V205 6GM6 2ND. PIX I-F AMPL.
T207 2ND. PIX I-F TR.
V206 6EW6 3RD. PIX I-F AMPL.
T208 3RD. PIX I-F TR.
CR201 SECOND DET.
V207-B 6EB8 NOISE CANCEL. TP204
V207-A 6EB8 VIDEO AMPL.
T209 4.5 MC TRAP
R127 30 K CONTRAST CONTR.
R112 200 K BRIGHTNESS CONTR.
V201 V202 V203 V207
OMIT CONN. WHEN TERM. PP IS USED
V502 6AV6 1ST. SYNC
V503-A 6EM7 VERT. OSC.
V503-B 6EM7 VERT. OUTPUT
T104 VERT. OUTPUT TRANS.
V106 19AVP4 KINE
R104 1 MEG. VERT. HOLD
R150 270
R147 1200 VERT. LIN.
V101 6DQ6A HORIZ. OUTPUT
V102 1G3GT-1B3GT H.V. RECT.
T102 H.V. TRANS.
+20,000 V.
MEASURED WITH BRIGHTNESS CONT. FULLY COUNTER-CLOCKWISE.
VERT. COILS L105 L106
DEFL. YOKE
L104
SR102 RECT.
SR101 RECT.
T103
S101 ON-OFF SW
R120 22 K HOR. HOLD
V103 6DE4 DAMPER
F101
EE-139 370-0
120 V. 60~ SUPPLY

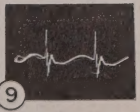


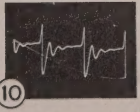


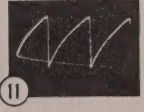


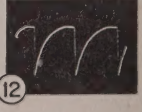












Schematic Diagram Courtesy of Radio Corporation of America